THE MARINE REVIEW

VOL. 48 CLEVELAND JUNE, 1918 NEW YORK No. 6

Mass Attack Needed to Win Success

Rivalry Between Individuals Must Give Way to Collective Enthusiasm if Vital Shipbuilding Program is to be Completed Promptly

VON CAPELLE, holder of the somewhat dubious honor of being minister of Germany's bottled-up navy, distributes statistics generously. German submarine construction, he assures his countrymen, is running far ahead of destruction. At the same time England is losing from three to six times as many ships as she is able to build. He draws the moral: Stand by the old guard and win a strong German peace.

Sir Eric Geddes, first sea lord of the English admiralty, with greater care for veracity, sounds a message of similarly serious import, but one stripped of the bombast. He has laid repeated emphasis on the fact that the British mercantile marine has been reduced by 20 per cent since the beginning of the war; that the first year of unrestricted warfare cost the world six million tons of shipping; and that the monthly output of British shipyards must be almost doubled before the monthly rate of sinking is counterbalanced.

Submarine Campaign Means Work Still Ahead

In the United States, where statistics frequently are bandied back and forth with a too lavish hand, either side of the case for or against the submarine's devastation can be proved with equal facility. Some leaders on the allied side have been repeating for weeks that the definite mastery of the submarine is a matter of only a few months more. How much of this optimism arises from the adoption of new or improved combating devices or from the accretion to the world's tonnage by new construction, the public can only conjecture. The checkrein on overconfidence generally follows quickly with an announcement of increases in the number of ships sunk, a disappointing showing in shipbuilding, or a pessimistic utterance by someone in authority.

One impression has been steadily gaining ground. That is the conviction that to America is given the task of supplying the conclusive answer to the unterseeboote campaign through the construction of constantly increasing numbers of ships. England with her developed shipyard capacity allowed construction to fall off to an alarming point and now she is busily capitalizing the consequent anxiety felt by her citizens by drawing specific attention to actual figures showing the seriousness of her losses and the necessary efforts that must be exerted to overcome an alarming situation.

A Weapon Just Winning Recognition

Publicity as a necessary factor in winning the war has been given only a one-sided appreciation by most of the leaders in all of the allied nations. The degrees of publicity employed generally have ranged from the absolute clamping down on news which England put into effect in the early days to the boasting generalities of the first months of America's participation in the war. As we learn one by one the lessons with which the allies previously became familiar, publicity's correct function as a stimulator rather than a soother of public opinion is being called into action.

The shipping board is turning this weapon to good account. In contrast with the cloak thrown over its activities of last summer, the board gave publicity to its disappointment over the showing in shipbuilding in March. For the past few weeks it has been using with great effectiveness the art of publicity in exciting healthy rivalry between the various yards.

How to Get the Best Results

The charts issued by the board and published elsewhere in this issue show the wide spread in efficiency between various yards and between various districts, reveal the need for collective as well as individual improvement. A riveting record set by one gang on one day is of little use unless the entire yard is operating at a normal speed. An efficient management at one yard may find its efforts offset by ineffectiveness on the part of the managers of another yard. What is needed now is to have the enthusiastic rivalry for records kept alive at present by individual yards and groups permeate and energize all shipyard managers and employes. Success of the shipbuilding program demands a mass attack.

Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

STEEL SHIP CONSTRUCTION
CHART 1

STANDING	YARD	DISTRICT
1	TAMPA S. B. CO.	4
2	STATEN ISLAND S. B. CO.	2
3	MOORE & SCOTT IRON W'KS.	7
4	CRAMP & SONS	10
5	SKINNER & EDDY	8
6	COLUMBIA RIVER S. B. CORP.	8
7	BETHLEHEM (MOORE PLT.)	2
8	LONG BEACH S. B. CORP.	7
9	BETHLEHEM (HARLAN PLT.)	3
10	AMERICAN S. B. CO. (LORAIN)	9
11	AMES S. B. & D. D. CO.	8
12	NEWBURGH SHIPYARDS	2
13	AMERICAN S. B. CO. (DETROIT)	9
14	NORTHWEST STEEL CO (WILLAMETTE)	8
15	HANLON D. D. & S. B. CO.	7
16	FEDERAL S. B. CO.	2
17	NEW YORK S. B. CO.	10
18	BETHLEHEM (MD. PLT.)	3
19	AMERICAN S. B. CO. (CHICAGO)	9
20	ALBINA ENG. & MCH. WKS.	8
21	GREAT LAKES ENG WKS. (ECORSE)	9
22	CHESTER S. B. CO	10
23	TEXAS S. B. CO.	1
24	SEATTLE CONST. & D. D. CO.	8
25	DUTHIE & CO.	8
26	STANDARD S. B. CO.	2
27	TOLEDO S. B. CO.	9
28	AMERICAN S. B. CO (CLEVELAND)	9
29	BALTIMORE D. D. & S. B. CO.	3
30	BETHLEHEM (FORE RIVER)	1
31	NEWPORT NEWS D. D. & S. B. CO	3
32	AMERICAN S. B. CO (SUPERIOR)	9
33	BETHLEHEM (UNION IRON PLT.)	7
34	McDOUGAL - DULUTH	9
35	MANITOWOC S. B. CORP.	9
36	PUSEY - JONES	3
37	WESTERN PIPE & STEEL CO.	7
38	GLOBE S. B. CO.	9
39	GREAT LAKES (ASTHABULA)	9
40	SUN S. B. CORP.	10
41	DOWNEY S. B. CORP.	2
42	PENN. S. B. CORP.	10
43	LOS ANGELES S. B. CORP.	7
44	AMERICAN S. B. CO (BUFFALO)	9
45	GROTON IRON W'KS.	1
46	SAGINAW S. B. CORP.	9
47	MERRILL - STEVENS	4

CHART 2

DIVISION	DISTRICTS INCLUDED
PACIFIC	NOS. 7, 8, 11
GREAT LAKES	NO. 9
NORTH ATLANTIC	NOS. 1, 2, 3, 10
GULF & S. ATLANTIC	NOS. 4, 5, 6.

CHART 3

DIST. NO	STATES INCLUDED IN DISTRICTS
8	WASH. (EXCEPT COL. RIVER Y'DS.)
7	R.I., CONN., N.Y., (ATL. COAST), N.J. (EX. S. JERSEY)
3	MD., VA. & DEL.
7	CAL., ORE. (EX. COL. RIVER Y'DS.)
9	GREAT LAKES SECTION
1	ME., N. H. & MASS.
10	PHIL'A., S. JERSEY & VICINITY
4	N.C., S.C., GA., FLA., (EX. PENSACOLA)
5	FLA. (PENSACOLA ONLY), ALA., MISS., LA. (EX. MORGAN CITY)
6	LA. (MORGAN CITY ONLY), TEXAS
11	ORE., WASH., (COL RIVER Y'DS. ONLY)

NO TASK IN MARCH
NO STEEL SHIPS
" "

RIVET COMPETITION
CHART 4

YARD	DISTRICT
SKINNER & EDDY	8
BETHLEHEM S.B. CORP. (UNION)	7
NORTHWEST STEEL CO.	8
COLUMBIA RIVER S. B. CO.	8
AMES S. B. & D. D. CO.	8
BETHLEHEM S.B. CORP. (SPARROWS PT.)	3
J. F. DUTHIE & CO.	8
MOORE & SCOTT	7
BETHLEHEM S.B. CORP. (HARLAN)	3
AMERICAN S.B. CO. (CLEVELAND)	9
NEW YORK S. B. CO.	10
ALBINA ENG. & MCH. WKS.	8
NEWPORT NEWS S.B. & D.D. CO.	3
WESTERN PIPE & STEEL CO.	7
TOLEDO S. B. CO.	9
FEDERAL S. B. CO.	2
BALTIMORE S.B. & D. D. CO	3
BETHLEHEM S.B. CORP. (FORE RIVER)	1
PENNSYLVANIA S. B. CO.	10
STANDARD S. B. CO.	2
STATEN ISLAND S. B. CO.	2
HANLON D. D. & S. B. CO.	7
DOWNEY S. B. CORP.	2
MC. DOUGALL - DULUTH CO.	9
GLOBE S. B. CO.	9
AMERICAN S.B. CO. (DETROIT)	9
AMERICAN S.B. CO. (CHICAGO)	9
AMERICAN S.B. CO. (SUPERIOR)	9
CHESTER S. B. CO.	10
BETHLEHEM S.B. CORP (MOORE)	2
AMERICAN S.B. CO. (LORAIN)	9
AMERICAN S.B. CO. (BUFFALO)	9
MERCHANT S. B. CORP.	F.P.
TAMPA S. B. CO.	4
SUBMARINE BOAT CORP.	F.P.
AMERICAN INTER. S.B. CORP.	F.P.

SHIPYARDS NOT REPORTING ARE NOT LISTED

CHART I SHOWS STEEL SHIP CONSTRUCTION BY YARDS, CHART 2 BY DIVISIONS AND CHART 3 BY DISTRICTS. CHART 4 SHOWS RIVET-DRIVING RECORDS BY YARDS, CHART 5 BY DIVISIONS AND CHART 6 BY DISTRICTS

CHART 5

DIVISION	DISTRICTS INCLUDED
PACIFIC	NOS. 7, 8, 11
N. ATLANTIC	NOS. 1, 2, 3, 10 FABRICATING PLANTS
GREAT LAKES	NO. 9
GULF & S. ATLANTIC	NOS. 4, 5, 6

CHART 6

DISTRICT	STATES INCLUDED IN DISTRICTS
8	WASH. (EXCEPT COL. RIVER Y'DS.)
7	CAL., ORE. (EX. COL. RIVER Y'DS.)
3	MD., VA. & DEL.
10	PHIL'A., S. JERSEY & VICINITY
1	MAINE, N. H., & MASS.
2	R.I., CONN., N.Y., (ATLANTIC COAST), N.J. (EXCEPT S. JERSEY)
9	GREAT LAKES SECTION
4	N.C., S.C., GA., FLA. (EX. PENSACOLA)
F.P.	AMERICAN INTER. S.B. CORP. MERCHANTS S.B. CORP. SUBMARINE BOAT CO.
5	FLA. (PENSACOLA ONLY) ALA., MISS., LA. (EX. MORGAN CITY)
6	LA. (MORGAN CITY ONLY), TEXAS
11	ORE., WASH (COL. RIV. Y'DS. ONLY)

NO YARDS REPORTING
NO YARDS BUILDING STEEL SHIPS
" "

Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Western Ship Riveters Far in Lead

Figures Given Out by the Emergency Fleet Corporation Show That Pacific Coast Yards Are Driving the Most Rivets Per Way

SUCCESS in turning out tonnage for the government depends largely upon the speed at which rivets are driven. It has been an open secret for some months past that the driving of rivets has lagged to the extent of seriously interfering with the government's program.

Some improvement has been brought about during the past few weeks by the rivalry which has sprung up between different yards as to which can set the best rivet-driving record. The general average, however, is still below normal. To further spur the riveters to make the best efforts possible, the Emergency Fleet corporation has decided to keep careful records of riveting and to make public the results regularly.

The first complete record has just been issued and it shows that the shipyards in the Pacific coast section are leading all others. The records are based on figures compiled for March. The North Atlantic division ranks second, the Great Lakes third and the Gulf and South Atlantic fourth. This is illustrated in chart 5.

The records take into account only rivets driven into ships actually under construction in the yards. Some yards are driving rivets in steel which enters into the building of ships for the Emergency Fleet corporation, but these ships were not under actual construction at the time the figures were compiled and credit was not given for this fabricating work.

In the Pacific coast division, which includes shipping board districts 7, 8 and 11, rivets were driven during the week ending March 30 at the rate of nearly 30,000 a way. This district is far ahead of all competitors. The North Atlantic section includes districts 1, 2, 3 and 10 and the fabricating plants. Figures show that this section during the same week drove rivets at the rate of only 9000 to 10,000 per way. Thus the Pacific coast riveters are setting a pace almost three times as fast as those of the North Atlantic.

Great Lakes Ranks Third

The Great Lakes region stands third in the compilation with approximately 9000 rivets a way while the Gulf and South Atlantic section is fourth with less than 4000 rivets a way.

The standings by districts are shown in chart 6. District 8, which includes the state of Washington except the Columbia river yards, leads all competitors with nearly 32,000 rivets a way. The seventh district, consisting of California and Oregon, with the exception of the Columbia river yards, is a close competitor with about 27,000 rivets a way. District 3, which comprises the yards of Maryland, Virginia and Delaware, stands third with 21,000 rivets a way. District 10, which includes Philadelphia, southern New Jersey and vicinity, is fourth with 13,000 rivets a way. District 1, which takes in the shipyards of New Hampshire, Maine and Massachusetts, stands fifth with slightly less than 13,000.

The remaining contestants in their order are district 2, which includes Rhode Island, Connecticut, the Atlantic coast in New York and New Jersey, with the exception of southern New Jersey; district 9, which takes in the Great Lakes region; district 4, which includes North Carolina, South Carolina, Georgia and Florida, with the exception of Pensacola; and the fabricating plants. These districts drove respectively between 11,000 and 12,000, 9000, between 3000 and 4000, and 2500 rivets per way in the week mentioned.

Ratings of yards on the basis of rivets driven per way are shown in chart 4. These ratings show that the Skinner & Eddy plant, Seattle, which leads the country in the delivery of ships, also leads all yards in rivet driving. This plant is credited with 43,000 rivets a way in the week ending March 30. The Bethlehem Shipbuilding Corp. (Union Iron Works plant) is second with 39,000; the Northwest Steel Co.'s plant third with nearly 35,000; the Columbia River Shipbuilding Co. fourth with 33,000 and the Ames Shipbuilding & Drydock Co. fifth with approximately 30,500.

From then on the list runs from the Bethlehem Shipbuilding Corp. (Sparrows Point, Md.) yard, with about 29,000, to the American International Shipbuilding Corp. fabricating plant at Hog Island, with approximately 1000 rivets driven per way.

The Emergency Fleet corporation points out that no claim is made that the compilation illustrates the relative construction accurately, as the charts are based on the rivets actually driven into ships under construction for the corporation and on the ways, and rivets driven under other conditions are not included. Similar charts are to be issued regularly.

Pacific Shipyards Make Best Showing

SHIPYARDS all over the country are making better progress than they did a few weeks ago. At the same time, in its efforts to speed up the shipbuilding program still further, the Emergency Fleet corporation has decided to give the public regularly complete information regarding the actual progress in ship construction made by each yard. Officials of the corporation expect in this way to keep alive a rivalry between yards, districts and geographical divisions which should result in putting ships into the water more quickly.

The first complete figures have just been issued and show that the Pacific division comprising shipping board districts 7, 8 and 11 leads with a percentage of 63; the Great Lakes division, which comprises district 9, is second with 48 per cent; the North Atlantic division, including districts 1, 2, 3 and 10, is third with a percentage of 46, and the Gulf and South Atlantic division is fourth with a percentage of 12. This is shown in chart 2 which also gives the percentages.

The several districts, as shown in chart 3, rank as follows: District 8, 73 per cent; district 2, 58 per cent; district 3, 55 per cent; district 7, 52 per cent; district 9, 48 per cent; district 1, 38 per cent; district 10, 35 per cent; district 4, 13 per cent. District 5 had no task in March, while districts 6 and 11 were not building steel ships.

The rating of yards on the basis of rate of construction for March is shown in chart 1. The Tampa Ship-

Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

building Co., Tampa, Fla., set a mark of 128 per cent; the Staten Island Shipbuilding Co., New York, was second with 105 per cent, and the Moore & Scott Iron Works, San Francisco, third with 102 per cent. No other steel shipyard reached the 100 per cent mark.

These figures, the corporation points out, must not be interpreted in terms of delivered ships, because the records are based on actual erection, no account being taken of preliminary work.

The records are based on the percentage of completion of task. The task is considered as starting in general with the laying of the keel, the task per period being the total task of creating a 100 per cent completed ship divided by the number of time periods between the keel laying and contract delivery dates.

If the keel is not laid more than six months in advance of delivery date then the task automatically is charged against the yard. This is done to prevent a yard making a showing on some of their contract ships at the expense of others which should be started. Bimonthly reports are to be made to Washington of the progress made on each ship and the task completed will be credited and charted, the shipyards notified and the results made public.

The Emergency Fleet corporation states that "in many instances just now with the new shipyards being built and actual construction work held back during yard preparation, a given shipyard may appear to disadvantage, compared with other yards that have made headway in actual construction.

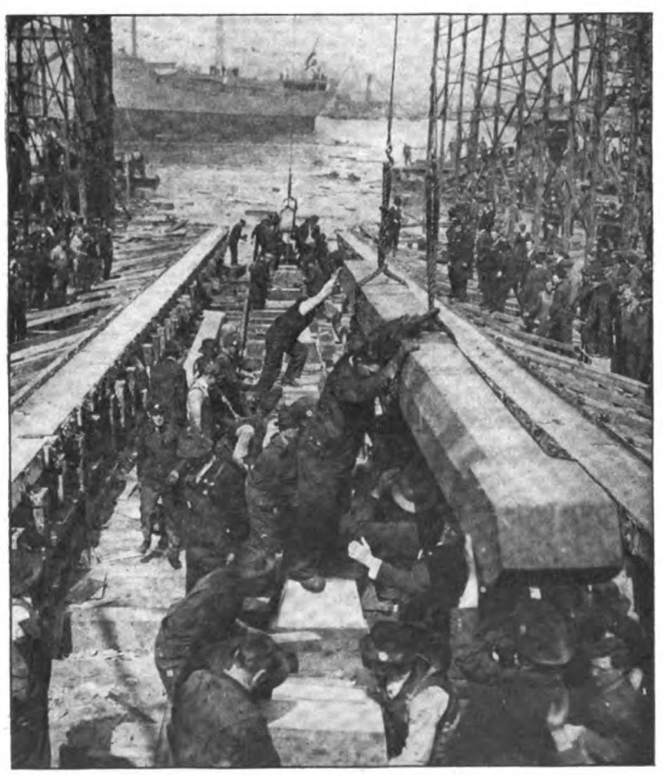
"A given yard may be rated as having attained, say, 75 per cent of its allotted task during the past month. That does not mean that the yard has ships 75 per cent completed, of course, for by the task method of measurement, the work allotted for that month may have been done on keels or other parts of new ships, and the precentage merely indicates how much of the assigned task was completed."

Shipbuilders Set New Speed Records

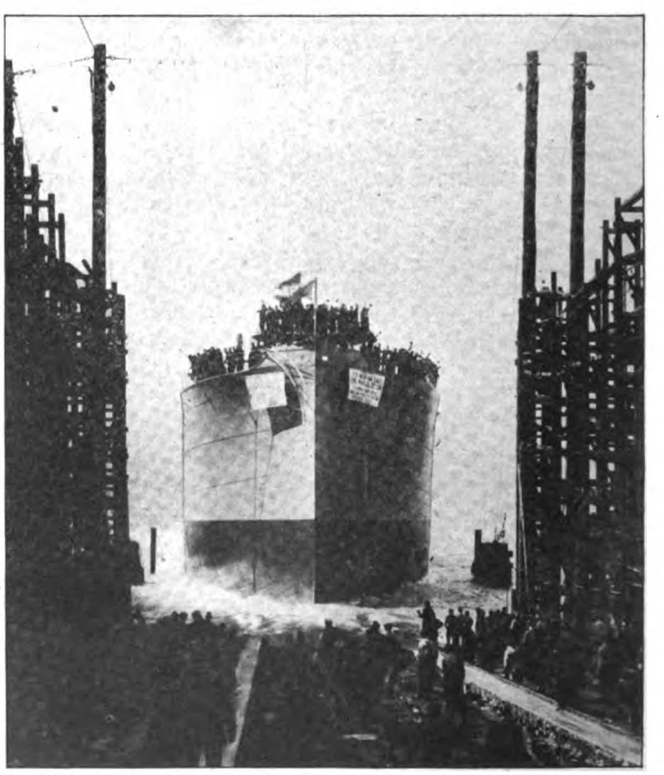
EFFORTS of the Emergency Fleet corporation to build and equip the greatest merchant marine the world has ever known, are beginning to bring about startling results in rapid yard and ship construction. Many sites that a year ago were tide-swept marshes and waste land, are now the scenes of busy activity.

With new shipwards being established all along the country's long coast line, it is not surprising that keen competition has risen among the various yards as to which can build ships in the quickest time. This energetic rivalry has already resulted in establishing shipbuilding records that a short time ago were undreamed of. A year ago, the statement that it was possible to build and launch a 5500-ton vessel in the short space of 27 days, and 15 days later have her ready to take on cargo, would have been given but little credence. Yet, this is exactly what the New York Shipbuilding Corp., Camden, N. J., has accomplished.

The vessel that was built in this record-breaking time was launched May 5 and christened TUCKAHOE. She was launched 41 days ahead of time, as her contract delivery date was June 15. She is 330 feet long, 50 feet beam and has a speed of 10½ knots an hour. The accomplishment of building the TUCKAHOE in 27 days surpasses any record previously made in any shipyard in the world. The best record of any British shipyard is said to be about two and one-half months and previous to our entrance in the war, American shipyards had not equalled British builders in turning out steel merchant tonnage.



SPEEDING UP THE SHIPPING PROGRAM BY LAYING A NEW KEEL 10 MINUTES AFTER A VESSEL HAD LEFT THE WAYS



THE 8800-TON STEEL FREIGHTER WEST LIANGA, BUILT AND LAUNCHED ON THE PACIFIC COAST IN 55 WORKING DAYS

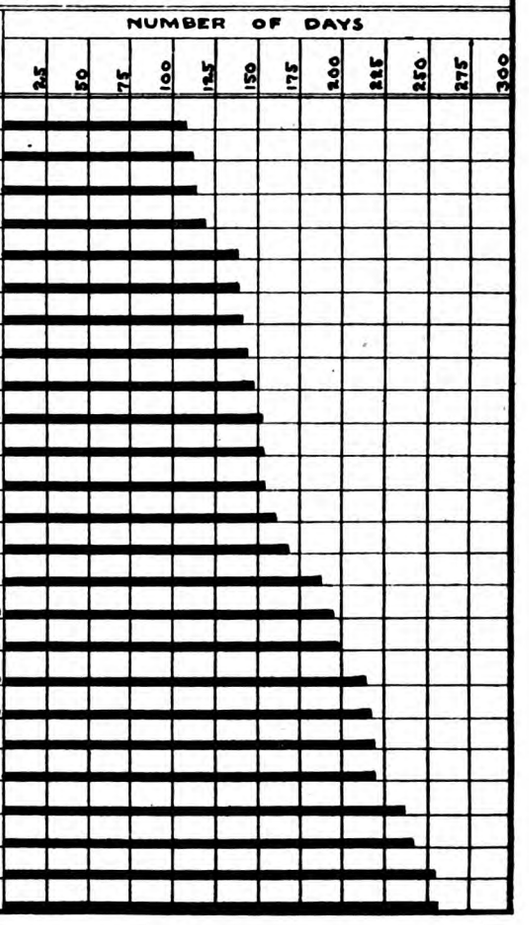
Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

LIST OF TWENTY-FIVE SHIPS BUILT IN SHORTEST TIME

FROM KEEL LAYING TO DATE OF ACCEPTANCE

APRIL 26, 1918

STANDING	YARD	DISTRICT	HULL NO.	TYPE	D.W.T.
1	SKINNER & EDDY	8	86	CARGO	8,800
2	" " "	8	85	"	8,800
3	" " "	8	17	"	8,800
4	" " "	8	16	"	8,800
5	" " "	8	83	"	8,800
6	AMERICAN S. B. CO. (DETROIT)	9	216	"	3,100
7	SKINNER & EDDY	8	10	"	8,800
8	AMERICAN S. B. CO. (DETROIT)	9	215	"	3,100
9	" " " (CLEVELAND)	9	469	"	3,100
10	" " " "	9	470	"	3,100
11	SKINNER & EDDY	8	84	"	8,800
12	AMERICAN S. B. CO. (SUPERIOR)	9	528	"	3,100
13	SKINNER & EDDY	8	12	"	8,800
14	AMERICAN S. B. CO. (SUPERIOR)	9	529	"	3,100
15	BETHLEHEM S. B. CORP. (UNION)	7	154	"	6,000
16	NEWPORT NEWS S. B. & D. D. CO.	3	207	"	7,430
17	" " " " "	3	206	"	7,430
18	SKINNER & EDDY	8	11	TANKER	9,000
19	AMERICAN S. B. CO. (LORAIN)	9	725	CARGO	3,100
20	DUTHIE & CO.	8	14	"	8,800
21	AMERICAN S. B. CO. (LORAIN)	9	726	"	3,100
22	BETHLEHEM S. B. CORP. (UNION)	7	145	TANKER	10,475
23	" " " (SPARROWS PT.)	3	167	CARGO	7,500
24	BALTIMORE S. B. & D. D. CO.	3	78	TANKER	5,000
25	N. W. STEEL CO. (WILLAMETTE)	8	4	CARGO	8,800



HOW LEADING AMERICAN YARDS RANK IN TURNING OUT SHIPS RAPIDLY

Work on the TUCKAHOE progressed as follows: The keel was laid on April 8 and four days later the double bottom was completed. Six days later frames and bulkheads were erected and a portion of the shell plate finished. On the seventh day the stern frame was placed in position. The boilers were installed on the fourteenth day. On the twenty-first day the stern post was bored and the stern tube placed in position. The masts were stepped on the twenty-second day and the work of installing the engines begun. The funnel was placed in position on the twenty-fourth day. The twenty-sixth day saw the engines and other machinery completely installed and from then until the launching the time was occupied in putting on finishing touches.

Makes Lake Record

The American Shipbuilding Co., Cleveland, made a remarkable record in turning out the 3500-ton steamer LAKE NARKA in 40 days after her keel was laid, despite delays in getting material. The question of speeding up at the American Shipbuilding Co.'s yards was taken up in March when A. J. Patmore, superintendent of the yard, was instructed to put forth every effort to complete the vessel in record time. He knew that 60 days would break the record for the Great Lakes, that is, 60 days from the time of laying the keel to the launching. On March 19 the keel of the vessel was laid in 18 minutes. After laying the keel and bottom plating, delays developed on account of the channel floor frames not arriving at the yards. These were not received until April 5, and in the intervening time but little work could be done on the ship.

After these frames had been received it developed that, owing to transportation delays, the side frames had not been received. Superintendent Patmore rose to the occasion, however, and forestalled further delay by erecting all the molded shell plating on the vessel without framing. All this plating was put in place, with the exception of the shear strake. The delayed frames reached the yard on April 15 and were finally erected in the ship. "We can do it," was the slogan that inspired the men and work on the vessel progressed in spite of handicaps, owing not only to lack of material, but to bad weather. The LAKE NARKA was finally launched on May 4.

West Coast is Active

The Skinner & Eddy Corp., Seattle, established a record when it launched the 8800-ton steel steamship WEST LIANGA in 55 days from the date of the keel laying. This is the fifteenth steel steamship launched for the government from Seattle yards.

The Columbia River Shipbuilding Corp., Portland, Oreg., completed a steel vessel in 83 working days. This vessel is the WESTGROVE, 8800 tons deadweight capacity. The keel of this ship was started Jan. 15 and the hull launched March 27. At the time the vessel was launched it lowered by 10 days the best previous record, which was held by the Skinner & Eddy Corp.

Portland also made a record for fast wooden construction in launching the WAKEN. This vessel was built by the Grant-Smith-Porter Ship Co., and was

Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

completed in 53 working days. The keel was laid Feb. 19 and the vessel launched March 27. The same company broke its own record later when it completed the CAPONKA in 50 working days. The keel for this vessel was laid Feb. 26. Had certain materials been available, the company officials said, the CAPONKA would have been completed in 48 days from the time the laying of her keel was started. Delay was experienced in waiting for a shaft.

At the Foundation Co.'s plant, Kearny, N. J., as shown in the accompanying illustration, workmen were busy laying the keel of a vessel 10 minutes after the ACCOMA had been launched, and as another vessel was started at the same time, this made two vessels in actual process of construction ten minutes after one was launched.

Big Ocean Fleet Sails From Lake Ports

IMPORTANCE of the Great Lakes as a shipbuilding center, was revealed a few days ago when a fleet of 34 new ships sailed for the Atlantic. They had all been completed during the winter and went into commission as soon as the winter ice blockade was broken.

The ninth district of the United States shipping board comprises the entire Great Lakes and what has been achieved in this section during the last nine months is a remarkable record of efficiency. At a recent meeting at Chicago of the chamber of commerce of the United States the importance of the ninth district was further emphasized.

The ninth district was created Aug. 24, 1917. At that time there were under contract in Great Lakes yards 102 vessels. Of this number, 98 were for ocean service and all but two of these 98 were of canal size, that is to say, about 3400 tons deadweight capacity. The two exceptions were of 5500 tons and had to be taken through the canals in two sections each and assembled at Montreal. One of these ships, the FLORENCE H, was blown up by an explosion in a French port a few weeks ago. Under the name of the SOUKHARAS, she was described in THE MARINE REVIEW, November, 1917. All of these vessels were requisitioned by the Emergency Fleet corporation, but three were later released to their lake owners.

Of these 98 ships, 27, including the two of 5500 tons, were taken to sea before the formation of ice finally stopped operations at Montreal on Dec. 3. This was accomplished after a bitter tussle with the ice in the lower St. Lawrence canals and river. All of these vessels reached salt water without a mishap and all carried cargoes from the Great Lakes.

During last winter, the Great Lakes yards worked steadily toward delivery of a big fleet on the opening of navigation. The success of their work is shown by the fleet of 34 ships just taken to sea—20 of these vessels being defensively armed.

It must be borne in mind by those not conversant with the existing conditions on the Great Lakes that this stupendous task was accomplished while the usual overhauling and repairing of the large iron ore and bulk freight fleet was being given attention. This latter task must be accomplished during the winter months and the past severe winter was an unusually severe season in which to carry on marine repair work. To take care of the ore fleet of the Great Lakes is just as vital as building up an adequate merchant marine for 85 per cent of all the iron ore used in the United States is moved by water on the Great Lakes.

Early in April there were under construction in the ninth district for the Emergency Fleet corporation, 297 cargo ships, of which approximately 130 must be completed and delivered between May 1 and Dec. 1 of the present year. This means two ships every three days. One company recently took a contract for 66 additional ships. All must be completed before Dec. 1, 1919. The average tonnage has increased also. It now stands at about 3700 deadweight. The value of this fleet is approximately $200,000,000. If this fleet were arranged in a line, it would extend 14½ miles and the total deadweight or cargo capacity would be over 1,100,000 gross tons.

In the ninth district there are seven companies actively engaged in shipbuilding. These companies operate thirteen yards, all building steel ships. One yard has built one wooden ship, and two new yards which have just begun operations, have contracts for a number of seagoing tugs. Canal-size cargo ships to the number of 64 can now be laid down in these yards at one time. If material supplies were normal, these yards could deliver more than 200 ships a year. The Emergency Fleet corporation's present building program on the Great Lakes calls for approximately 400,000 tons of ship steel, 30,000 tons of boiler steel, and approximately 80,000 tons of castings, forgings, pipe and fittings, plates, shapes, sheets, etc.

Delivery dates have been consistently broken—but on the right side. The fact that the ninth district has steadily been ahead in deliveries speaks volumes for the high degree of efficiency of these lake shipyards. In the month of February, as an illustration, 27 per cent of all the ships actually delivered in the United States were the products of this district. Furthermore, every ship was up to or ahead of schedule; in some cases several months.

To Furnish Fan Outfits

The American Blower Co., Detroit, describes the Hog Island shipyard in a recent issue of its house paper. The company will furnish 140 outfits of 150-inch steel plate fans, direct connected to vertical engines, for induced draft work on 35 of the Hog Island vessels. Each outfit will furnish a maximum of 40,000 cubic feet of air per minute at a ¾-inch static suction pressure at the inlet of the fan.

The passenger season on Lake Erie between Buffalo and Cleveland opened early in May with the sailing of the Cleveland & Buffalo Transit Co.'s steamer CITY OF BUFFALO. It is expected that the company's big steamer, the SEEANDBEE, largest sidewheel steamer in the world, will be placed on the Cleveland-Buffalo run June 15. The service between Cleveland and Cedar Point and between Cleveland and Put-in-Bay is scheduled to begin not later than June 16.

An interesting booklet giving "The Tale of a Pound of Steam" is being distributed by the Ashton Valve Co., Cambridge, Mass. The pamphlet gives a brisk and informative narrative of the wanderings of a pound of steam.

The Newburgh Shipyards, Inc., Newburgh, N. Y., recently published the first issue of a works paper called *Fore an' Aft*. The paper is devoted to happenings in the Newburgh yard and to subjects of interest to shipyard employes. The first issue presents much interesting information that is written in an attractive manner.

The Carlson-Wenstrom Co., Philadelphia, manufacturer of winches, will build an addition with 20,000 square feet of floor space, to cost about $60,000.

Generated on 2024-07-26 17:07 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Schooner That Picked Up a House

While the Captain Goes Below, the Cook Takes the Wheel, Gets Off the Course, Rams a Fisherman's Shanty and Tries to Sail Through a Wharf

By Frank R. Rosseel

ONE of the most remarkable and laughable tales of schooner sailing came to me last spring. Cap was staying with us while he fitted out in April and one day in swapping yarns, he asked me if I had ever heard about the schooner that picked up a house.

He told me the main points of the story and later I obtained further details from the man who was at the wheel when it happened and who still lives on St. Clair river. The schooner was the F. X., owned by Raymond & Daniels, of Algonac, Mich., and was one of the many little tramps that picked up a living on Detroit and St. Clair rivers and Lake St. Clair in the "schooner days", carrying staves, shingles, lumber and salt, toting sand and anything anyone wanted toted about the rivers. She was a scow of light draft, 80 to 100 feet long; carried captain and mate, a couple of hands and a man cook.

It happened in November, 1869. It was near midnight, the sky was cloudy and the little schooner ran up Detroit river before a fair wind. They were about 12 miles below Detroit and near the head of Grosse isle. It was the captain's watch on deck and the mate and one hand were asleep below.

The other hand was supposed to be on lookout for'd, but really he was taking a little nap of his own.

The cook, with his day's work done and all the pots and pans shined up and put away, was sitting out on deck having a smoke before turning in.

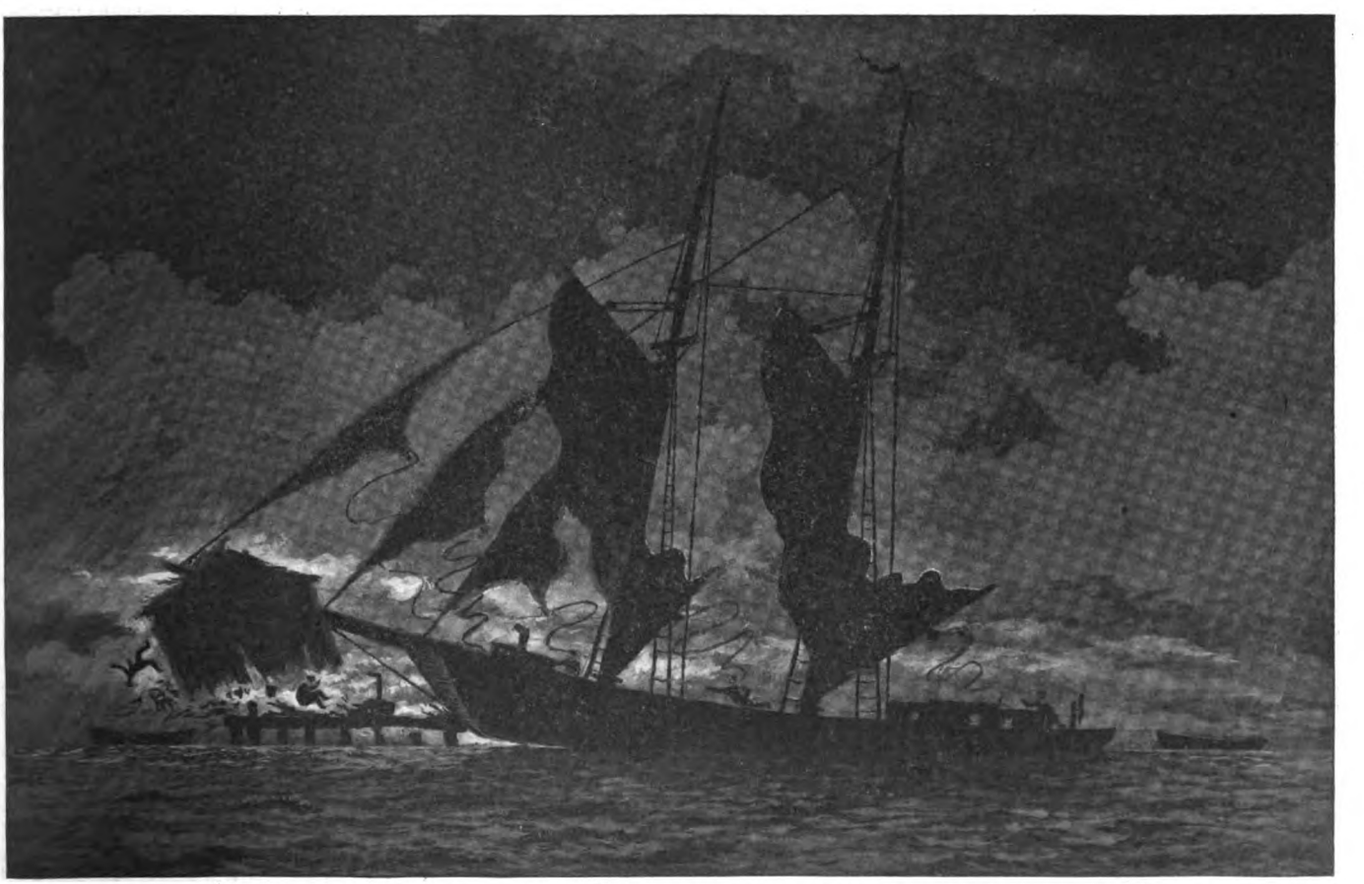
Captain Goes Below

The captain happened to remember something neglected during the day and said: "Here, Tom, take the wheel. I want to go below a few minutes."

"But," Tom said, "shucks, Cap, I'm not a sailor, I'm a cook; I don't know the river and never handled a wheel in my life."

"Easiest thing in the world," the captain replied. "Light, fair wind—open water—just have to hold her straight up stream as she heads—I'll be back in a jiffy."

So reluctantly Tom took the wheel, and after noting how he "took hold", the captain went below. While the captain's jiffy lengthened out to a quarter of an hour the F. X. sailed silently up stream and Tom was getting confidence and telling himself it wasn't so much of a trick to handle the wheel, when suddenly and without warning there was a sound of splintering boards coming from ahead of the schooner, followed immediately by a shock and the crunching of timbers. The schooner rose up forward and settled aft; her masts bent and snapped and pretty near went out of her. Men rushed on deck half clad and the captain cleaned the cabin stairs at a jump and raced for'd. Straining sheets were eased away and distracted men shouted and swore—some on the schooner's deck and



SCHOONER F. X. WITH THE COOK AT THE WHEEL TRYING TO RUN OVER A WHARF

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

some in the water. When the captain reached the bow and looked over he saw in the darkness a great shapeless black mass hanging from his bowsprit. Wrathful men were being dragged out of the water onto a low wharf upon which the fore part of the F. X. was firmly planted. Having a scow bow she had slid up onto the wharf.

Tom had got off the course and out of the channel and had picked up a fishing shanty planted on a platform built on piles driven in about four feet of water, half a mile from shore, in shoals where the fishermen owning the outfit lived. The first touch of the collision drove the end of the schooner's long bowsprit through the shanty and as she slid up onto the wharf the shanty rose in the air and hung suspended over the water beyond. Men shouted and dogs barked, and a house stove pipe, dishes and chairs were tumbled overboard.

Anyone with a live imagination can picture for himself the astounding and overwhelming surprise of the schooner's sudden unannounced rush upon the shanty with its sleeping occupants, like the tail of a "twister" dropped out of a clear sky. Half dazed men, spilled at midnight from their bunks into the black water and dragged out of it to find their door yard occupied by the bow of a schooner and their house dangling overhead from her bowsprit. The shanty was thoroughly wrecked but the schooner was released next day, practically uninjured. They hauled her off by planting an anchor astern and carrying a line to her windlass. I had known the scow when a small boy, and then never heard of her again until this tale came to me 50 years afterward.

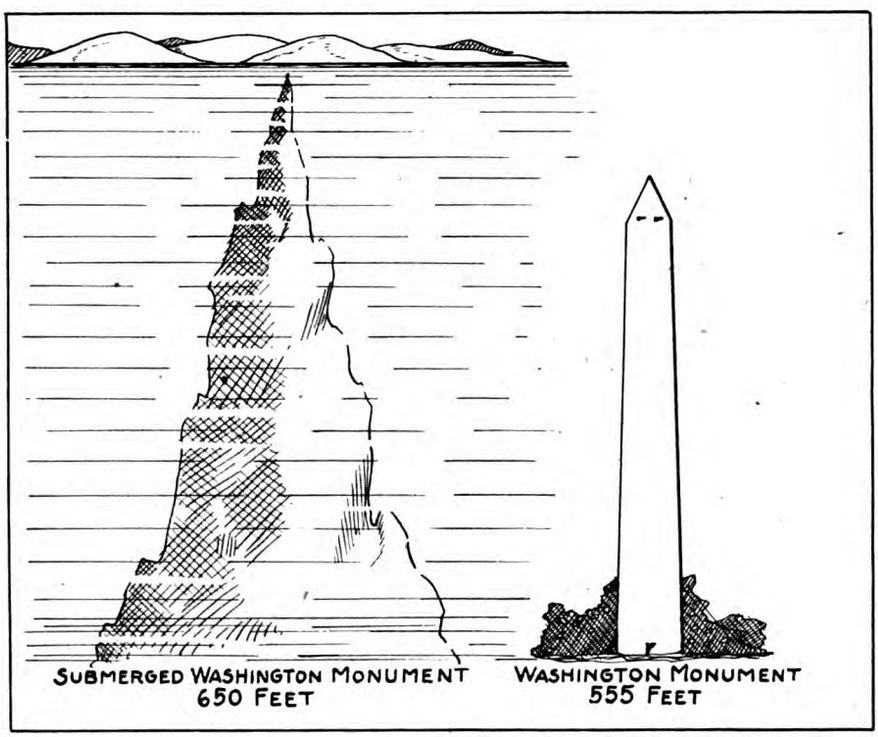
If there is any moral attached to the story it is that a man shouldn't be supposed to understand navigation just because he has flipped griddle cakes in a schooner's galley.

The Canadian Car & Foundry Co. is to build a shipbuilding plant and marine railway at Fort William, Ont. The shipbuilding plant is to be 200 x 220 feet and the marine railway 2000 feet long. The foundation work for the building has been let to E. G. Penniman & Co., Fort William. The Dominion Bridge Co., Ltd., Montreal, Que., will take charge of the structural work.

High Alaskan Rocks Menace Navigation

THE shores of Alaska are exceedingly rocky, with but few stretches of sandy beach. Practically the whole Alaskan coast is marked by elevated islands and peninsulas carved by glacial action and separated by narrow and deep fiords. In passing through the waters of Alaska the traveler sees on every hand rugged mountain ranges whose profiles present a confusion of sharp, jagged peaks of various heights. But of more immediate interest to him is the fact that these same features are duplicated in the waters underneath. The tops of the highest peaks emerge from the sea on all sides and add to the dangers of navigating these waters. These rocks are called pinnacle rocks. Greater danger is found in those rocks which just fall short of coming to the surface, and which have been effectually designed by nature to tear holes in ships' bottoms.

The seriousness of this danger is shown by the pinnacle rock recently found in a main steamer route in southeastern Alaska by a government survey party. This rock has been named the submerged Washington monument, owing to its immense size. This rock is shown in the accompanying illustration in comparison with the real Washington monument. The rock is 650 feet high and only 17 feet of water covers it. The Washington monument is 555 feet high.



WASHINGTON'S MONUMENT HAS A SUCCESSFUL RIVAL IN PINNACLE ROCK IN SOUTHEASTERN ALASKAN WATERS

Britain Issues Rules For Concrete Ships

The following notice to shipbuilders and shipowners regarding ferroconcrete ships has just been issued by the marine department of the board of trade of England:

"The following preliminary instructions are issued for the information of the builders and owners of seagoing ferroconcrete ships and for the guidance of the board's surveyors.

"These vessels will be required to comply with the requirements of the merchant shipping acts. All vessels which proceed to sea, except sailing vessels and dumb barges under 80 tons register solely employed in the coasting trade, must be marked with a loadline as required by section 438 of the marine shipping acts, 1894, and section 7 of the marine shipping act, 1906. The position of the loadline is regulated by the requirements of the tables of freeboard (1909), and depends on the strength of the hull.

"In order that the authority to whom application will be made for the assignment of a loadline may be fully informed of the structural arrangements upon which the strength of the hull of a ferroconcrete ship depends, full information as to the intended arrangements must be supplied by the builder

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

to that authority, and the vessel must be built under the inspection of the surveyors of that authority.

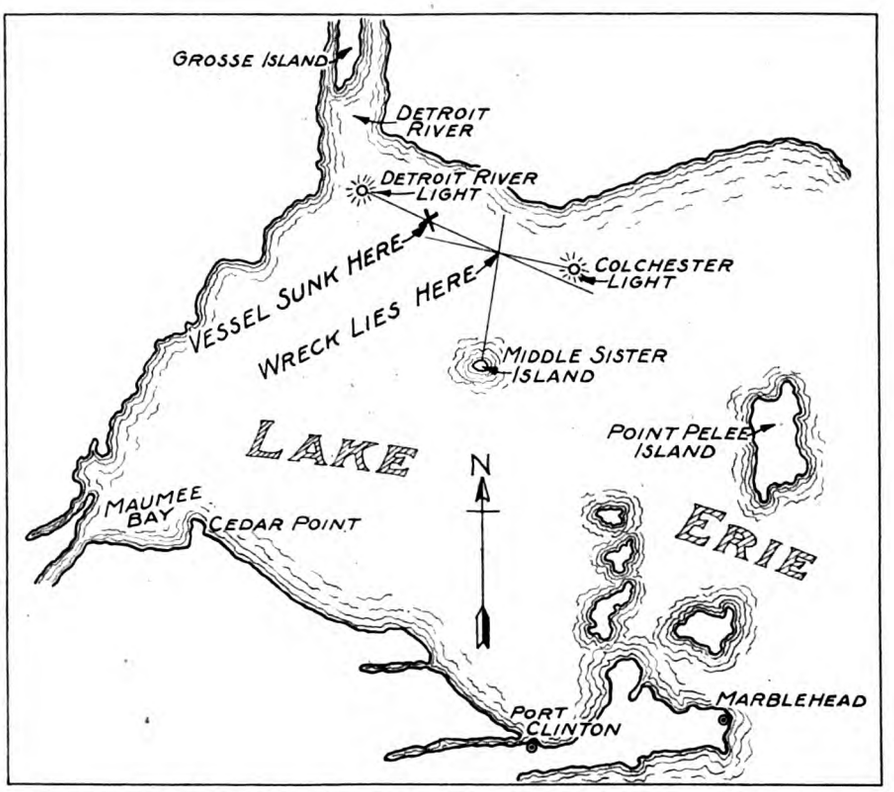
"The builders of such vessels should accordingly make application for the assignment of a loadline as soon as possible, and in any case before construction is commenced, either to Lloyd's register, the British Corp., the Bureau Veritas or to the board of trade.

"The application should be accompanied by detailed calculations of the strength of the vessel, drawings showing the construction of the vessel and arrangements of reinforcements in detail and a general specification of the materials to be used and the methods of construction to be followed.

"Board of trade surveyors are instructed to bring this circular to the notice of all persons building or proposing to build ferroconcrete ships and also to advise the principal ship surveyor as soon as possible whenever preparations for the construction of such vessels are brought to their notice.

"When an application for assignment of a loadline has been received the surveyors are to exercise a close inspection of the construction of the hull in all its stages, and full reports should be forwarded to the board as to the manner in which the work has been carried out in each case.

"The loadline disk and the marks in connection therewith are to be permanently marked on a steel plate 33 x 18 x ¼ inch, embedded in the concrete flush with the outside and suitably secured. Instructions of a more detailed character will be issued for the surveyor's guidance in due course. If application for assignment of a loadline to an unclassed vessel is made to the board of trade, a special fee of £5 will be payable in addition to the prescribed fee for loadline survey in the case of a steel or wood vessel."



SUBMARINE VOYAGE TAKEN BY LAKE WHALEBACK SHOWN BY THIS OUTLINE CHART OF WESTERN LAKE ERIE—DISTANCE COVERED WAS FIVE MILES

Long Search Locates Lost Lake Boat

AFTER several weeks of fruitless search, the wreck of the whaleback steamer HENRY CORT, which sank last winter and then disappeared this spring, has been located, thus clearing up a lake mystery. The boat was located 5 miles from where she sank. The search was conducted under the direction of Capt. W. W. Smith, marine superintendent of the Pittsburgh Steamship Co., Cleveland. Later, Captain Smith was assisted by Capt. F. A. Bailey, shore captain of the same fleet, and M. S. McDiarmid, assistant engineer of the United States lake survey, Detroit.

Captain Smith says the extremely heavy ice in Lake Erie last winter was responsible for the CORT being carried 5 miles from where she went down. As the ice formed and closed about the vessel, it gripped her solidly. When the ice moved out in the spring, the vessel went with it for a considerable distance.

On Dec. 17 of last year, while working as an ice breaker to assist the passage of late grain vessels into Lake Erie, the CORT was rammed by the steamer MIDVALE. She sank approximately 4½ miles below Bar Point light. When the ice broke away this spring the CORT had disappeared. The vessel's turrets, stack and upper works were, of course, carried away by the ice, but no trace of the hull could be found. President William Livingstone, of the Lake Carriers' association, offered a reward of $500 for information of the vessel's location.

Search Lasts Many Weeks

Search was begun immediately and continued for many weeks. The wreck was finally located about 5 miles above Colchester, Ont. Its location is described as follows: Detroit river light, south 62 degrees 50 minutes, east 9.5 miles; Colchester light, north 84 degrees 40 minutes, west 4.4 miles; Middle Sister light, north 11 degrees 20 minutes, east 6.3 miles. The position of the wreck before and after the underwater voyage is shown in the accompanying illustration. The wreck of the CORT lies with bow and stern due north and south at right angles to, and approximately 800 feet south of the downward sailing course. The vessel lies in 30 feet of water and is entirely submerged. There is about 7 feet of water over her deck.

The sunken vessel is, of course, a menace to navigation and no time was lost in marking her location. Red and black striped spar buoys have been placed at her bow and stern, while a gas buoy with a green top and black base, which shows a red flash of three seconds alternating with an eclipse of three seconds, has been placed over the vessel amidships.

Captain Smith says that he does not anticipate any unusual trouble in raising the wreck of the CORT. It is his intention to patch the gash cut by the MIDVALE'S bow, after which a cofferdam will be constructed around the vessel's stern. The hatches will be thoroughly battened and the vessel pumped out. Plans for the work are being made.

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Build Huge Crane for Shipyard Use

Mammoth Hoisting Unit Now Under Construction Will Have Lifting Capacity of 392 Net Tons—Unusual Size of This Shipbuilding Crane Necessitated Radical Changes in Design

SUCCESSFUL prosecution of modern warfare requires almost day to day progress in military science. Racing alongside of development in the military arts comes the advance in mechanical science. Probably the most graphic illustration of this necessary and parallel development of these sciences is the stride made in the last four years in aviation. Military reasons necessitated this development while progress in mechanical knowledge made it possible.

A long list of less absorbing but equally important developments can be traced in the mechanical arts during the past four years, most of which owe their growth directly to war's needs. One illustration of this is the steady increase in the sizes and weights of the guns employed both in land and naval warfare. The huge gun with which the Germans have been bombarding Paris is the most striking illustration of this growth but it marks merely a great forward step in the steady march toward larger guns. With this enlargement has come a great increase in weight and, as a corollary, heavier hoisting units. In naval construction particularly, the problem of handling these huge guns during their installation or while undergoing repairs, has led to rapid progress in the design of cranes of great capacity.

Work is now proceeding at Bedford, O., in the plant of the McMyler-Interstate Co., on the construction of the largest crane of its type ever built in the world. This crane will have a hoisting capacity of 392 net tons, the crane itself towering 230 feet above the ground. The crane will be installed at the Brooklyn navy yard primarily for handling heavy guns into and out of warships.

The design of this crane necessitated a departure from the established lines and the completed machine will differ radically from any hoisting unit previously built.

The crane is of the stationary, electrically operated, hammerhead type. The huge size necessary to secure a lifting capacity of 350 gross tons or 392 net tons, is revealed graphically in the smaller of the accompanying illustrations. The crane is shown in comparison with similar cranes of smaller size and also ranged alongside a modern office building. The maximum height of the new crane from the base to the top of the machinery house, is 230 feet. The Rockefeller building, at Cleveland, illustrated in the drawing, is 16 stories high, or practically 200 feet. The maximum load of 392 net tons carried by the new navy crane at a 115-foot radius, compares with a maximum of 5 tons carried by a small shipbuilding crane at 95-foot radius, or with a 120-ton weight carried by a shipbuilding crane of that capacity, at a maximum radius of 60 feet. The drawing also shows on the same scale, the ordinary locomotive type crane as well as a modern freight locomotive, three of which could be picked up at one time by the new navy crane.

In constructing this crane, approximately 3340 net tons of steel will be required. This includes 2500 tons of structural steel, 375 tons of machinery 35 tons of electrical apparatus, 100 tons of miscellaneous parts and 330 tons in the counterweight.

In calling for bids for this crane, the navy department had under consideration the construction of three machines of the same size and design. Up to this time only one has been contracted for.

The crane will be installed at the Brooklyn navy yard, the contract calling for completion by June 1, 1919. The machine will be erected for the first time upon its permanent site at the navy yard. This site is a pier which gives only a 20-foot clearance at each side of the crane. Present plans call for the use of a 275-foot derrick boom in handling the erection work.

The arrangement of the crane is shown clearly in the general plan. The dock is 100 feet wide giving a clearance of 20 feet on each side of the 60-foot portal. The illustration shows the manner in which the crane will command slips on both sides of the pier.

The crane will have a capacity for hoisting and slewing a load of 350 gross tons at a maximum of 115 feet, and a load of 50 tons at a maximum radius of 190 feet. The main hoist is divided into two duplicate units, each of 175 gross tons capacity. Special provision has been made for coupling these units when the full capacity of the huge crane is desired.

The crane is a specially designed type. The steel tower mounted on the main portal, converges at the top and carries a roller bearing which supports the boom. In addition to this weight, the bearing carries a revolving steel frame structure which is guided by rollers carried in a path just above the main portal. This design was chosen to insure stability and to facilitate control while slewing. The revolving structure carries none of the weight of the boom. The roller bearing will be furnished by the Hydraulic Tool Co., Philadelphia.

A machinery house is carried at the rear of the boom, a cross section of this house being shown in the larger illustration. The number and size of the electric units used in operating the crane necessitated provision for a traveling crane in this machinery house to handle the machinery while being installed or repaired. This small crane is of the electric, overhead traveling type and has a capacity of 35 tons. The crane runway extends beyond the machinery house to permit hoisting the machinery direct from the ground. An electrically operated vertical sliding door weighing 10 tons is provided in the rear of the machinery house.

A study of the principal dimensions of the main crane gives a clearer index to its immense size. The distance from the top of the foundation to the bottom of the main and auxiliary hoist hooks in their highest positions is 141 feet. The maximum radius from the center of rotation of the main hoist is 115 feet, with a minimum radius of 41 feet. The maximum radius from the center of rotation of the auxiliary hoist is 190 feet with a minimum radius of 41 feet. The clearance under the portal is 25 feet. The clearance between the portal legs is 50 feet. The main hoist blocks and the auxiliary hoist block will descend 29 feet below the dock level. The maximum radius of the main hoists, with a maximum load, is 115 feet when operated either separately or jointly. The auxiliary hoist has a maximum radius of 190 feet with a maximum load.

The operating speeds call for the rapid handling of loads. Each main

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

hoist, with a maximum load, operating either independently or jointly will have a speed of 2.5 feet per minute. With no load, each main hoist will have a speed of 10 feet per minute. The auxiliary main hoist with a maximum load will have a speed of 12 feet per minute and with no load, 30 feet per minute. The speed of the trolley travel of each main hoist with a maximum load will be 12 feet per minute, and with no load, 100 feet per minute. The speed of the trolley travel of the auxiliary hoist with a maximum load will be 100 feet per minute, and with no load, 150 feet per minute.

The operating mechanism consists of an electric motor driving through from steel castings, the face of the drums being machine scored.

In order to operate the two main hoists in unison so as to insure equal hoisting speed when hoisting loads in excess of 175 tons the maximum capacity of each individual hoist—one of the intermediate shafts on each hoist is arranged for coupling so that the two motors drive through these coupled shafts. Change gears are provided on each hoist to permit variation in the speed of hoisting.

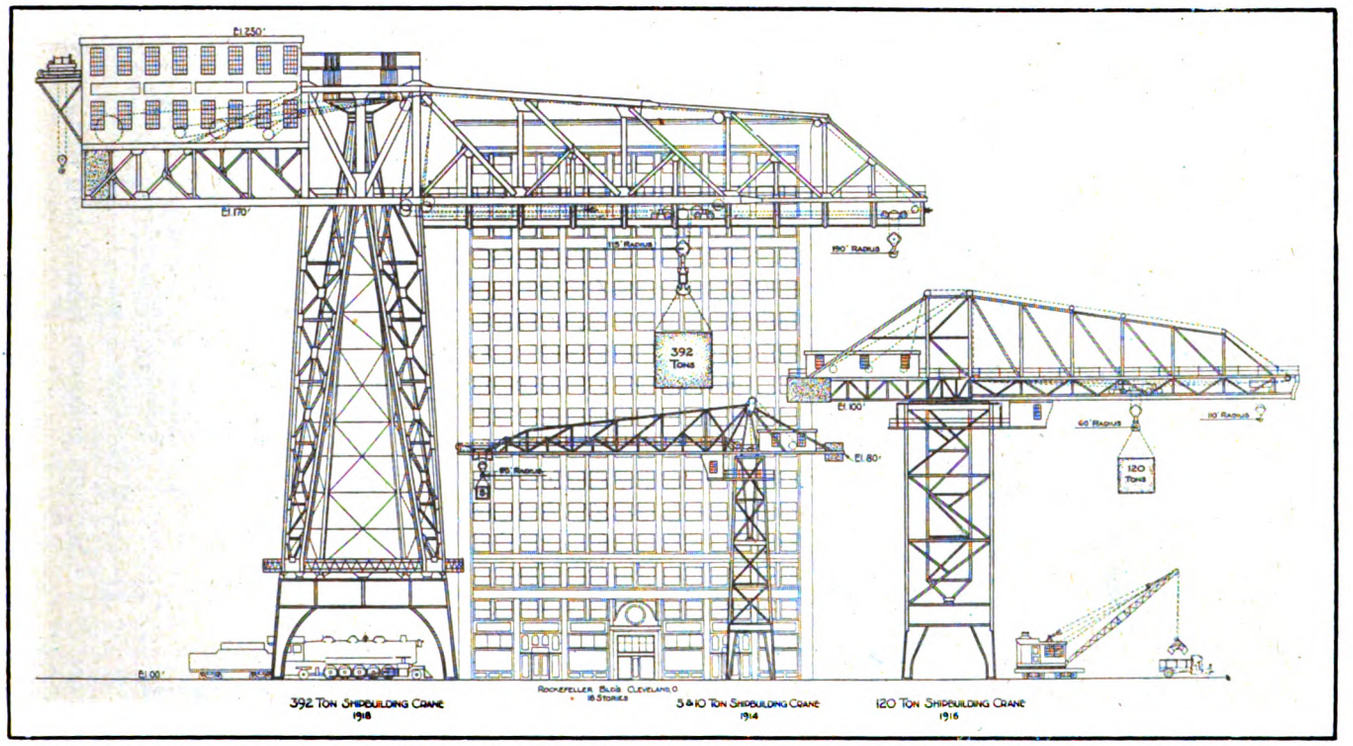
The first intermediate shaft on each hoist is equipped with a brake, 54 inches in diameter and with a 10-inch face. The object of this brake is to provide mechanical means of braking in addition to the electric brake. The mechanical brake will be used in emergencies.

The main hoist racking or traversing mechanism for the main hoist trolley which travels back and forth on the jib, consists of two duplicate rope drives, each unit operating one of the 175-ton hoists. A mill type motor of 27½ horsepower is used for each racking unit. The racking drums are 48 inches in diameter with a 54-inch space. The intermediate shafts of the racking or traversing mechanism are arranged to couple together to insure trolley movements in unison when hoisting maximum loads.

Change gears for securing speed changes are provided on the traversing mechanism. The motors have solenoid brakes.

On the auxiliary hoist, double ropes lead from the hoisting drum to the trolley. A mill type hoist motor of 87 horsepower is used. The hoisting drum on the auxiliary hoist is 84 inches in diameter with a 102-inch face, machine scored. A mechanical emergency brake is provided as well as a solenoid brake on the motor. The variations in hoisting speed with a maximum load and with no load is obtained by means of an electric speed control.

The auxiliary hoist racking or traversing mechanism follows the general design of that employed with the main hoist. A mill type motor of 27½ horsepower is used. The drum is cast iron, 36 inches in diameter and 54-inch face. The motor is provided with a solenoid brake. The required



GRAPHIC COMPARISON OF SHIPBUILDING CRANE WITH MODERN BUILDING AND WITH TYPICAL HOISTING UNITS

properly connected gears and shaftings, four vertical pinions meshing with a circular rack. The transmission mechanism is interposed with three compensating gears so as to compensate the duty on the four slewing pinions. The controller is of the magnetic type.

Two separate hoisting units are provided in duplicate. The design calls for a double lead from each hoisting drum to the trolley in order to reduce the rope strains by one-half as compared with the single lead. Each main cable will be equalized on a sheave at the outward end of the jib.

A mill-type motor of 87 horsepower will be used for each hoisting unit. The hoisting drums are 10 feet in diameter and 14 feet 4 inches long. The drums are built up in sections

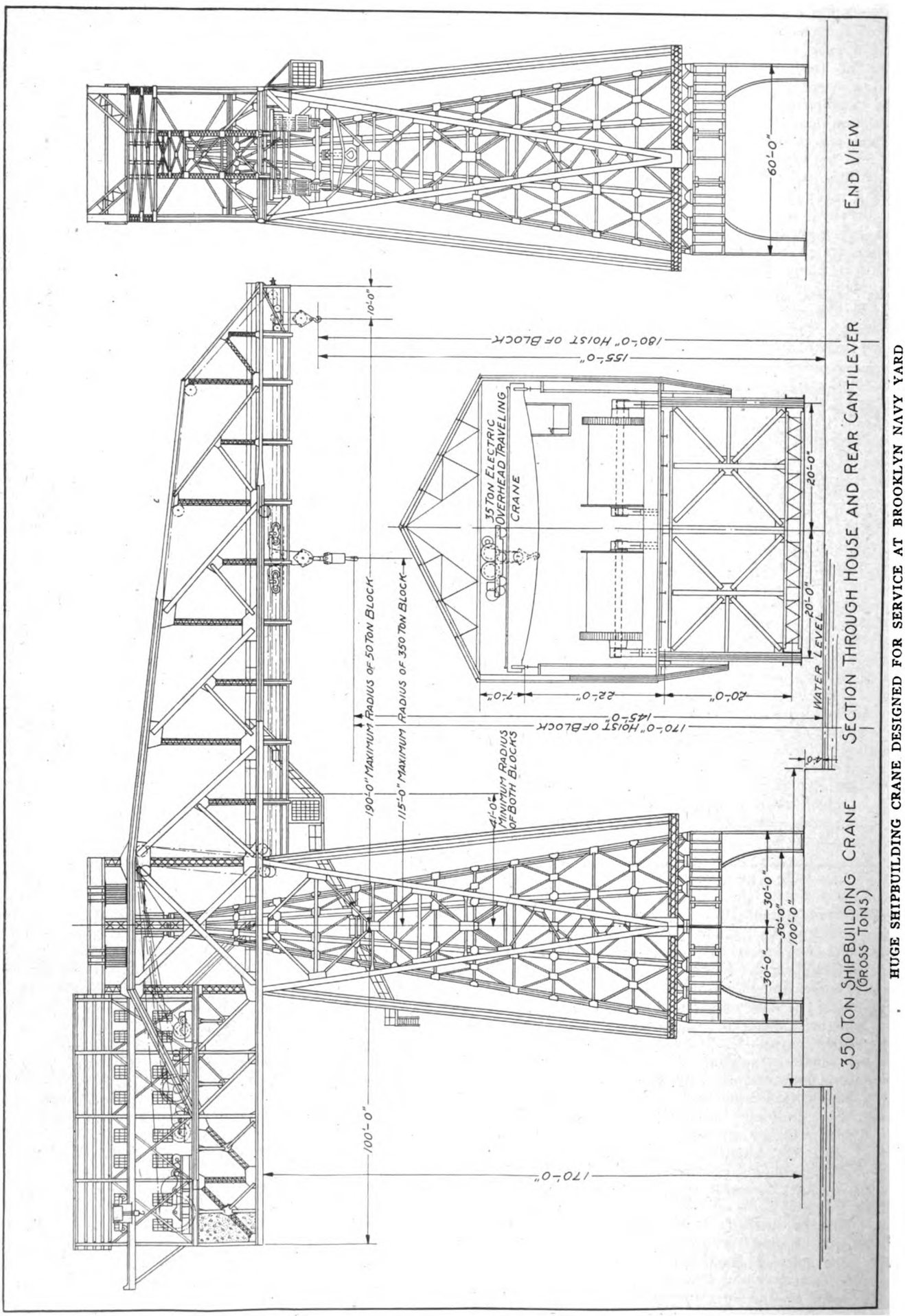
speed variations are electrically controlled.

Slewing mechanism comprises an annular rack mounted on the rear of the roller path at the base of the revolving structure. The rack is cast steel with cast teeth.

The motor equipment includes two motors for the main hoist; two motors for the main hoist trolley; one motor for the auxiliary hoist; one motor for the auxiliary hoist trolley; three motors for the overhead crane operating over the machinery floor, one motor for slewing and one for operating the vertical sliding door in the rear of the machinery house.

The auxiliary hoist trolley operates the full length of the travel independent of the main hoist trolleys. The trackway for the auxiliary trolley is located between the main hoist

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



HUGE SHIPBUILDING CRANE DESIGNED FOR SERVICE AT BROOKLYN NAVY YARD

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

trolley trackways. The main hoist trolley is mounted on eight rolled steel double flanged wheels, 30 inches in diameter. The wheels are mounted in pairs in equalizer trucks. The auxiliary hoist trolley is mounted on four rolled steel, double-flanged wheels, 24 inches in diameter.

Each main hoist will be reeved for two 8-parts hoist lines. These lines will be 1⅝ inches in diameter. Each hoist line is a single cable, each end of which is attached to opposite sides of the hoist drum. The auxiliary hoist will be reeved for two 4-parts line, 1⅜ inches in diameter, and the main hoist trolley reeved for single line operation, the lines being 1⅝ inches in diameter. The reeving of this line is in effect that of an endless cable, one end of the cable being attached to the drum and the opposite end to the inboard side of the trolley. The other cable is connected to the opposite end of the drum for winding in the opposite direction. The auxiliary hoist trolley will be reeved in the same way as the main hoist trolley, a ⅞-inch diameter line being employed.

An equalizing bar fitted with suitable shackle is arranged for connecting with the two main hoist fall blocks permitting the lifting of the maximum joint loads of the two main hoists.

Four 500-watt, 110-volt searchlights with reflectors are provided on the main trusses for illuminating the working area covered by the crane. A 500-watt flood light will be used in the operator's house.

The crane for handling machinery parts is carried on a crane runway in the machinery house where the operating mechanism is mounted. From center to center of the crane runway rails will be 43 feet. This runway will carry a 35-ton capacity, 3-motor electrically operated traveling overhead crane.

All operating levers for controlling the motions of the crane are located in the operator's cab in front and to one side of the rev lving structure. The clutches for coupling the main hoist mechanism, and the two main hoist racking mechanisms, are operated by the attendant in the machinery house. Electric bell signals in the operator's cab, machinery house and at the base of the crane are to be employed for controlling the operations of the crane.

H. Ensor, an Irish salvage expert, in speaking of the contemplated raising of the LUSITANIA, says that there is a probability that by this time she has ceased to be a ship. She was subjected to enormous pressure—140 pounds per inch—and was many times heavier than the heaviest ship he had lifted, one of 3000 tons. The swell in the open Atlantic would also interfere with the work. He thought the steamer had disintegrated under pressure and chemical action. Mr. Ensor in the last 20 years has accomplished many heavy salvage projects off the coast of Ireland.

R. Merrel's Sons, New York, have filed articles of incorporation with a capital of $410,000 for the manufacture of nautical instruments.

Club Helps to Americanize Stevedores

THE stevedores who load and unload cargoes at the docks of New York harbor hail from many countries. Their work is of an intermittent nature. In many cases the only places in which they can loaf are waterfront saloons. Many of these saloons are operated by foreigners of a decidedly unAmerican type who are in a position unduly to influence the men against the United States and its policies. Again, many stevedores have been accustomed to patronize the saloon as it is practically the only place open to them where hot, substantial food can be had.

At the Bush Terminal, Brooklyn, N. Y., it has been found that the efficiency is lowered when the men are exposed to all kinds of weather or are left free to patronize the saloons. To promote efficiency and to encourage a spirit of Americanism among its dock workers, the terminal built a longshoremen's club house. Here the dock workers can buy substantial, well-cooked meals at a little above actual cost and they can spend their time, while waiting to be taken on a job, amid healthy surroundings. The club is the only place at the terminal where smoking is permitted and the stevedores appreciate this privilege.

The club is free to the terminal's employes. The importance of developing American citizens from the mass of foreign-born waterfront workers has long been recognized by the terminal company which has thousands of men on its payroll. The club is proving a valuable means of fostering a spirit of Americanism among the dock employes and is thus raising their efficiency.

At the right is shown the interior of the Longshoremen's club, Brooklyn, N. Y. The exterior of the clubhouse is shown at the lower left while the upper left view shows a typical group of New York longshoremen.

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Manning the New Merchant Marine

How the United States Shipping Board is Training Deck and Engineroom Officers and Crews for the New American Ships

By Henry Howard
Director of Recruiting, U. S. Shipping Board

PRESENT construction plans for our merchant marine call for more than 8,000,000 tons of new shipping, to be completed within two years.

At the beginning of the world war, August, 1914, seven nations were credited with more than 1,000,000 tons of shipping each. Great Britain headed the list with 19,799,119 tons, the United States stood next with 7,928,688 tons, Germany third with 4,892,416 tons, France 2,173,544 tons, Norway 2,425,476 tons, Sweden 1,114,948 tons and Japan 1,167,264 tons. Austria had less than 1,000,000 tons, with only 998,130. Of the tonnage of the United States, something more than 2,000,000 tons was available for deep-water service in the Atlantic.

The first year of the war was sufficient to show the United States that the process of attrition in the world's supply of tonnage, due to normal war causes, and to the illegal use of the submarine by Germany, was creating a shortage of ships. This shortage became acute when the United States entered the war in April, 1917, thereby adding to the already pressing problem of logistics this country's vast needs of sea transportation for troops and supplies, and the quickened need of sending more and yet more supplies to our allies.

Urgency of Measures Understood

By the time this situation had developed, the nation, as a whole, understood the urgency of measures, long advocated by students of maritime conditions—residents mainly of the seaboard states—for developing our merchant fleets in accordance with the pressing demands of the times. Indeed, steps had been taken in that direction some months before, with the creation of the United States shipping board, by act of congress, in September, 1916.

In the following winter months the shipping board had been duly organized for business, and when the United States entered the war it was ready to exercise its functions as sponsor for a new, nationalized merchant marine. The powers conferred on the board by congress were sufficiently broad to enable it to take sweeping steps toward the desired end, and to insure the accomplishment in a few months or years of war time of what would not, and probably could not, have been accomplished in generations of peace.

Immediately after the country had become a party of the war, suggestions poured in on the shipping board as to ways and means of adding largely and rapidly to the nation's tonnage in merchant ships. One plan early adopted called for the building of 1000 wooden vessels, to carry cargo across the Atlantic, and offset, in large measure, the destructiveness of the German submarines. It was with the adoption of this plan that the shipping board took first steps in a construction program, afterward greatly enlarged, intended to produce several million tons of merchant shipping in record time.

Coincident with the sudden awakening of the nation to the vital need for more cargo ships, and the energetic initial steps of the shipping board to produce them, came forward the important question of manning the new merchant marine so soon to come into being. The country as a whole not having been accustomed, in recent times, to think in terms of shipping, appeared doubtful of its ability to produce the mariners needed to handle its new fleets. We were no longer a seagoing people, said the doubtful; we had lost the art of the sailor when the American square-rigged ship went out of use as a leader among the world's cargo carriers. Surely, our war need was pressing enough to appeal to the patriotism of Americans with a liking for the sea, but would any considerable numbers come forward for service on merchant ships?

These questions reflected a natural condition in the public mind, which as yet was unable to visualize the merchant marine in true perspective as one of the primary arms of the country's new equipment for progress. Relatively few men having knowledge of maritime affairs and a broad view of the trend of events in the world war, were able to grasp both the needs of the hour and the means of meeting them, and to take an optimistic view of our country's ability effectively to turn back to the sea, where it won its first laurels in commerce. Such men there were, however, in the United States shipping board, as I learned on approaching that body with a plan for manning our new merchant fleets.

Formulates Plan Early

It had been my good fortune to be reared in a New England community in which shipping was a subject of common knowledge, and to have made some study of cause and effect in the condition of our merchant marine as it was at the opening of the war. By the time the United States cast its lot with the allies I had formulated a plan for manning the new ships that we must build to win, and when congress declared that a state of war existed I laid my plan before the shipping board.

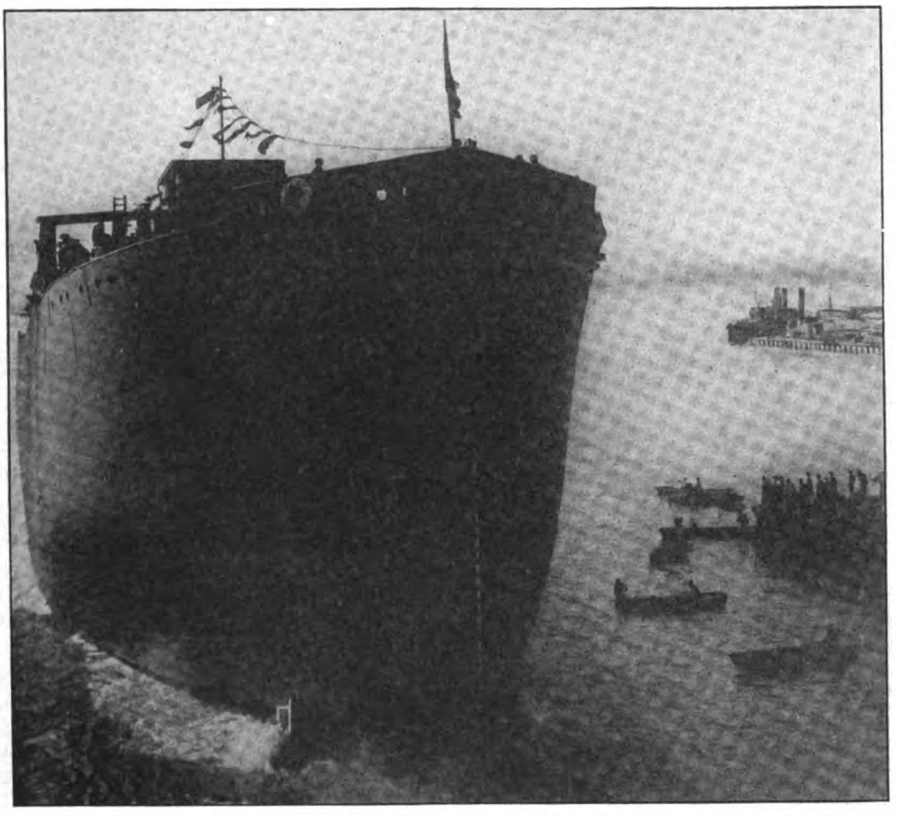
It provided, in brief, for a training system to prepare Americans for service on American merchant ships, the work to begin with the training of officers and eventually to extend to the training of crews. I pointed

Crews Supplied on Request

WHEN the United States entered the European war, serious doubts were held by those well versed in maritime affairs as to the country's ability to man quickly the new merchant marine which was planned. During the long period when the United States was content to lose her standing as a maritime nation, the number of American officers and sailors had steadily declined so that the task of finding enough men to handle the thousands of new vessels was a difficult one. The author of this article is the man who worked out the plan under which thousands of recruits have been trained for such service. He is now director of the recruiting service, United States shipping board. His article traces the inception and execution of the plan followed by the government in overcoming the serious shortage of sailors.

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

out to the board that there were many thousand fishermen on our coasts—there being not less than 100,000 on the Atlantic and Gulf seaboards alone—among whom could be found excellent material for merchant officers and sailors. Furthermore, former sailors were to be found in almost all the states, engaged in various occupations. Among them were former captains and mates of sailing vessels and not a few former officers of merchant steamers. There were also many marine engineers working ashore, and other engineers who could be prepared in a short course of special training for service at sea. By establishing free schools in navigation at important ports, and free classes in marine engineering at some of the leading technical colleges, I proposed to train enough men of the types indicated to meet the forthcoming increased demand for American deck and engine room officers for the new American cargo ships. I proposed reaching the men needed by statements in the press of the opportunities thus offered them for patriotic service and a chance for advancement in positions that would be as numerous after peace returned as during the war.



FINDING CREWS FOR NEW AMERICAN SHIPS IS A REAL JOB—ILLUSTRATION SHOWS A DELAWARE RIVER LAUNCHING

On May 29, 1917, I was authorized by the shipping board to inaugurate the training plan, and on June 1 was sworn in as director of recruiting service for the board. Three days later the first free navigation school to be conducted under the direction of the United States shipping board was opened, with 20 students, at the student's astronomical laboratory, Harvard university, kindly loaned for the purpose by the college faculty. Later this school was transferred to the Massachusetts Institute of Technology, where it has since been maintained.

The work of organizing additional schools went on through succeeding months, until 41 in all were established on the Atlantic, Gulf, and Pacific coasts and the Great Lakes. The response of men qualified to enter the schools was quick and gratifying as to numbers and, notwithstanding that no man was accepted as a student who had not served two years on a deep-water vessel, the percentage of men who qualified for admission, out of the total number of applicants called for preliminary examination, was large. Many of the applicants, actuated by patriotism, expressed a willingness to leave lucrative positions ashore in order to fit themselves for service in the merchant marine in war time. Others frankly hailed with delight an opportunity to get back to the sea, which they had left because of unpromising conditions in the decade preceding the opening of the great war.

National headquarters of the new training service were established at Boston, where a floor in the Boston custom house was set apart for its use by the treasury department. For administrative purposes in establishing and maintaining the schools the country was divided into sections, following closely the geographical divisions employed by the United States steamboat inspection service, which from the first co-operated heartily with the recruiting service of the shipping board in maintaining the standard set by the regulations of the department of commerce as to the experience required of a candidate for a merchant officer's license.

Each section was placed in charge of an official designated as section chief, in whose hands were placed all details as to the administration of the schools in that section. The board was fortunate in securing as section chiefs men of professional or business training, whose patriotism led them to donate their time to this service, their compensation being merely nominal—in most instances $5 a month. Important positions at national headquarters also were filled by volunteers with special capacity for administrative work. The section chiefs of the service are as follows: Section I, Horatio Hathaway Jr., 12th floor, Custom House, Boston; Section II, John F. Lewis, 108 South Fourth street, Philadelphia; Section III, Hardy Groom, 130 Riverside avenue, Jacksonville, Fla.; Section IV, Ernest Lee Jahncke, 814 Howard avenue, New Orleans; Section V, Farnham P. Griffiths, 465 California street, San Francisco; Section VI, William J. Grambs, 860 Stuart building, Seattle; Section VII, Capt. Irving L. Evans, 933 Guardian building, Cleveland.

Direction of instruction in the navigation schools was placed in the hands of Prof. Alfred E. Burton, dean of the Massachusetts Institute of Technology, who formerly was connected with the coast and geodetic survey, and who is a practical navigator of wide scientific knowledge. Professor Burton selected his instructors from among men of practical training, astronomers, explorers and former sea captains being among them, with recognized standing as teachers.

The system of instruction perfected for the schools was in accordance with the most approved methods of teaching navigation. It was there-

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

fore possible to impart to a student in six weeks' study a groundwork of the theory and practice of navigation to enable him to pass the examinations of the United States steamboat-inspection service, entitling him to a license as a second or third mate. The examinations were conducted without any modification of the regulations applying to ordinary applicants for a license. After they had been passed the student in need of practical experience on a steamer was sent to sea in the capacity of a reserve officer, for a period of two months, to learn the ropes before actually assuming the full responsibilities of the position for which he was licensed. During this period he was paid $75 a month. Afterward he received the usual pay for his grade in the merchant service.

Since the opening of the first school in navigation by the recruiting service of the shipping board, 39 others have been opened, as follows:

*Machias, Me.	*Savannah, Ga.
Rockland, Me.	Jacksonville, Fla.
*Boothbay Harbor, Me.	Tampa, Fla.
Portland, Me.	Mobile, Ala.
Gloucester, Mass.	New Orleans.
Cambridge, Mass.	Galveston Tex.
*New Bedford, Mass.	San Diego, Cal.
*Provincetown, Mass.	*San Pedro, Cal.
Providence, R. I.	Los Angeles.
*Greenport, L. I.	San Francisco.
New York City (2)	Portland, Oreg.
Atlantic City, N. J.	*Astoria, Oreg.
*Cape May, N. J.	Bellingh'm,Wash.
Philadelphia.	Tacoma, Wash.
Baltimore.	*Duluth.
*Crisfield, Md.	Chicago.
Norfolk, Va.	Cleveland.
*Newport News, Va.	Buffalo.
*Wilmington, N. C.	Detroit
*Charleston, S. C.	

*Only one term was held, which is now concluded.

The graduates from these schools, in the 10 months from June 1 to April 1, numbered 1500.

Engineering Schools

The development of the engineering schools was contemporaneous with that of the schools in navigation. The training of engineers was placed in the hands of Prof. Edward F. Miller of the Massachusetts Institute of Technology, and classes were established at the following places:

Massachusetts Institute of Technology, Cambridge, Mass.

Stevens Institute of Technology, Hoboken, N. J.

Bourse building, Philadelphia.

Johns Hopkins University, Baltimore.

Tulane University of Louisiana, New Orleans.

Case School of Applied Science, Cleveland.

Armour Institute of Technology, Chicago.

University of Washington, Seattle.

The school at Hoboken was later discontinued, and one was started at the Seamen's Church institute, New York City.

The course in the engineering schools is of one month's duration. The qualifications for admission to these schools differ slightly from those required for admission to the navigation schools, as men with proper technical experience are admitted who may require as much as six months' added training at sea before becoming eligible for licenses.

Experience required for an applicant to qualify for admission to enter one of these shipping board engineering schools is classified as follows:

Three years as fireman, on ocean or coastwise steam vessel.

Two years as oiler or watertender, or combined service of two years in these positions.

Six months as chief or assistant engineer, on lake, bay or sound steamer.

One years, chief or assistant, river steamer.

One year as locomotive or stationary engineer, with six months' sea service, which may be obtained after finishing school course.

Graduation from engineering class of nautical schoolship.

Graduation in mechanical engineering from a technical school, with six months' sea service.

One year in charge of stationary plant of not less than 1000 horsepower.

Three years as apprentice to machinists' trade, with six months' sea service.

About 1200 marine engineers were graduated from the shipping board free engineering schools in the first 10 months of their existence. Like the deck officers graduated, all were American citizens.

One noticeable effect of the recruiting service's call for Americans qualified to serve as officers in the new merchant marine, was the stimulation given men qualified to take examinations for licenses, without special schooling. Large numbers of such men, excellent mariners and citizens, secured licenses on their own initiative, without attending the shipping board schools, as is shown by the unprecedented number of licenses granted from June 1, 1917, to Feb. 1, 1918, by the steamboat-inspection service. Not less than 3600 original licenses were issued in that period—including those issued to the men specially trained by this service—while not less than 900 licenses were extended, or transferred from fresh waters to salt; while to April 1, 1918, the number of new and extended licenses was more than 5000.

The Sea Service Bureau

As a necessary adjunct to its training service for officers the recruiting service in July, 1917, established a department whose functions are indicated by its title, the sea service bureau. Graduates of the schools were placed on board ship by this department, at first entirely through the co-operation of private steamship interests, and later also on ships controlled directly by the shipping board. The work of this bureau showed at an early stage that without the supply of officers created by the shipping board schools there would have been at times in 1917 a shortage of mates and assistant engineers for American merchant ships, even before the shipping board's construction program began to bear the fruit of new vessels in commission.

Representatives of the sea service bureau were established in various important ports, and the bureau exercised increasingly broadened functions in placing American officers, and also crews, as the demand for them increased with the launching of increased numbers of merchant ships.

Training Merchant Crews

By the autumn of 1917 the construction program of the United States shipping board by which considerably more than 1000 new ships will be commissioned under our flag had advanced sufficiently to warrant the development of the second phase of the training plan originally submitted to the board for manning the new merchant marine—namely, the training of crews.

During the period devoted exclusively to the training of officers, I had received such a large number of communications from young men without sea experience, asking if provision was to be made for training men of their type for service in merchant crews, that I became convinced there would be no difficulty in securing all the material needed to man our new merchant ships with all-American crews. These communications came from all sections of the country.

Much thought was given by the recruiting service staff to working out a system of intensive training for crews, by the use of a squadron of training ships. In December, the shipping board approved the resulting detailed plans, and on Dec. 12, 1917, announcement was made in the press that the recruiting service was prepared to receive applications from young Americans between 21 and 30 who wished to be trained for service on merchant ships as sailors, firemen, coalpassers, oilers, watertenders, cooks and stewards. In the three months following this announcement more than 7500 applicants sent their names to the recruiting service headquarters.

The number of men required for this branch of the training service

(*Concluded on page 265*)

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

How to Prepare For Foreign Trade

Transfer of Rapidly Growing American Merchant Marine From War to Peace Basis Will Force Solution of Difficult Problems

By Edward N. Hurley
Chairman, United States Shipping Board

WE are building ships not alone for the war, but for the future of the world trade. Remember that once their part in the winning of the war is ended, a large number of them will be engaged in bringing back to home and industry the victorious soldiers and in transporting to Europe the materials necessary for reconstruction of normal life freed from the menace of avaricious autocracy. These vessels will serve the commerce of other nations equally with our own.

And if there are any men among you who doubt that we are going to have a vast fleet, I will simply ask you whether you have heard of a well known man in our organization whose name is Charles M. Schwab.

The immediate problem is first to transport men and supplies to Europe, but it must not be forgotten that the lines of supply do not originate wholly in the United States, but are fed by streams of imports of raw material derived chiefly from the markets of Latin America and Asia. These imports should be paid for, so far as possible, by exports of our own merchandise necessary for their needs. The prosecution of the war is quite as dependent upon the continued productivity of Latin America and Asia in basic metals, tin, nitrates, wool, rubber, hides, foodstuffs, etc., as upon the productivity of the United States and the British empire.

Japanese Tonnage Aids U. S.

American vessels are now being replaced in Latin American and Asiatic trades by neutral and Japanese tonnage, bought or chartered, so that for the time being the American flag will be less evident in those waters than for the last year or two, but if our expectations are fulfilled it should be possible by this time next year to see the return of a large number of American ships to the non-European trades. This, it is hoped, will go far toward the re-establishment of the American transportation facilities necessary to maintain commerce, but even if that could be wholly accomplished the situation of our Latin-American and Asiatic neighbors would remain still far from normal. Prior to the war their commercial and industrial development proceeded largely upon capital borrowed from Europe. This source of finance for three years has been cut off with the result that railroad extension, industrial construction, power development and public works have been seriously curtailed.

Our war industry, therefore, depends in no small degree upon countries handicapped for lack of capital. Even in normal times no prudent merchant would depend upon factories insufficiently financed.

Our opportunity and our necessity are now interlocked.

You and I, when we require credit, go to the banker who believes in our integrity, and foreign governments and business interests, when they require credit, go to the nations that believe in their integrity. Latin America and Asia need, and have been asking for, American capital. The present demands on the United States may be such that extensive financing is now not possible, but we should proceed to make our surplus capital available to the sister republics and to the countries of Asia at the earliest moment consistent with our war finance policy. The two are closely related. We should look forward to assisting these countries in extending their railroads, both steam and electric, financing the municipalities on sound and conservative lines, and become interested more extensively in their mining properties, particularly the materials required in the United States. All nations are now more jealous than ever of their independence of others in supplies of raw materials. The American policy is not to monopolize raw supplies, and our interest should be protected against the denial of essential materials to us by any others.

Will We be Ready?

What are we doing? What are we planning to do? When ships are ready for commerce after the war will our merchants and manufacturers be ready for greater overseas enterprise?

The "Webb" bill authorizing co-operation in export trade is now a law, but this is not sufficient without the spirit to take advantage of it and the knowledge on the part of the business men that their ventures into foreign markets will be supported by a strong national policy tending to encourage efficient production, convenient finance and cheap transportation. It is not a question of choice or preference. The productive capacity of this country had exceeded consumption even before the European war began in 1914. The capacity has since been vastly expanded to meet the needs of war. It is so with other countries. This implies a keener competition in which the United States must be successful if labor is to be kept employed.

The share of world trade to which America aspires is that to which the resources, the skill and energy of our people entitle us in fair and friendly competition with the nations who are at once our customers and our suppliers of materials and merchandise. Unless we continue to develop our foreign trade after the war we can have no enduring prosperity.

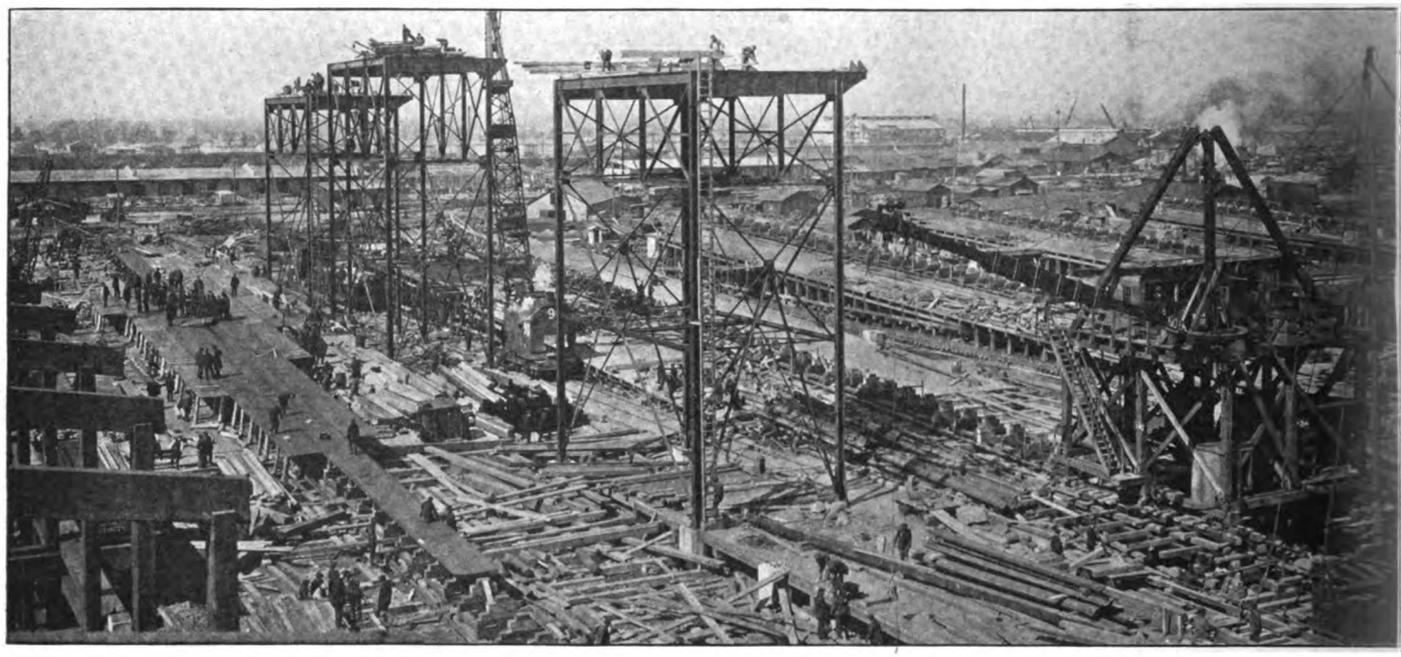
The American steamer WESTERLY, the first of the new ships to be built by the Emergency Fleet corporation, was sunk in a collision April 30 off the French coast. All aboard were saved. The vessel, of 5000 tons capacity, was launched on the Pacific coast in February, and was returning to the United States.

Bringing Costs Down to a Peace-Time Basis

THE transfer of these vessels to peaceful commerce at the end of the war will be a rather complicated problem. They are being constructed because, and only because, of war needs under conditions and pressure which have enormously increased their cost per ton over the cost of construction prevailing in normal times. It would seem fair that their valuation be written down to a point which will give them a fair chance to compete with vessels built before the war at much lower cost.—EDWARD N. HURLEY.

From a recent address at a testimonial dinner to Isaac F. Marcosson.

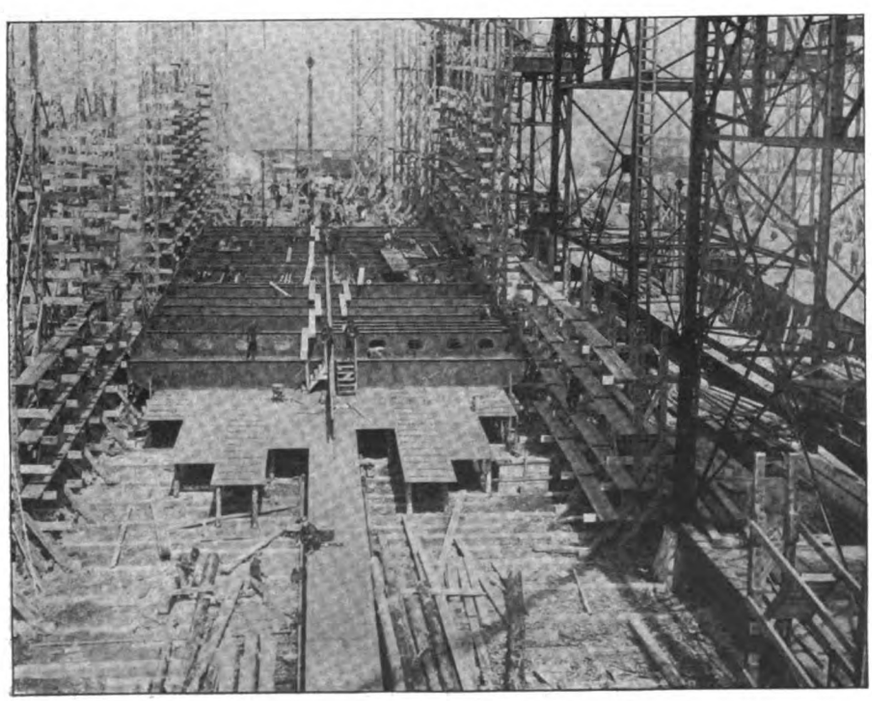
Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



A Panorama of the Great Hog Island Yard of the American International Shipbuilding

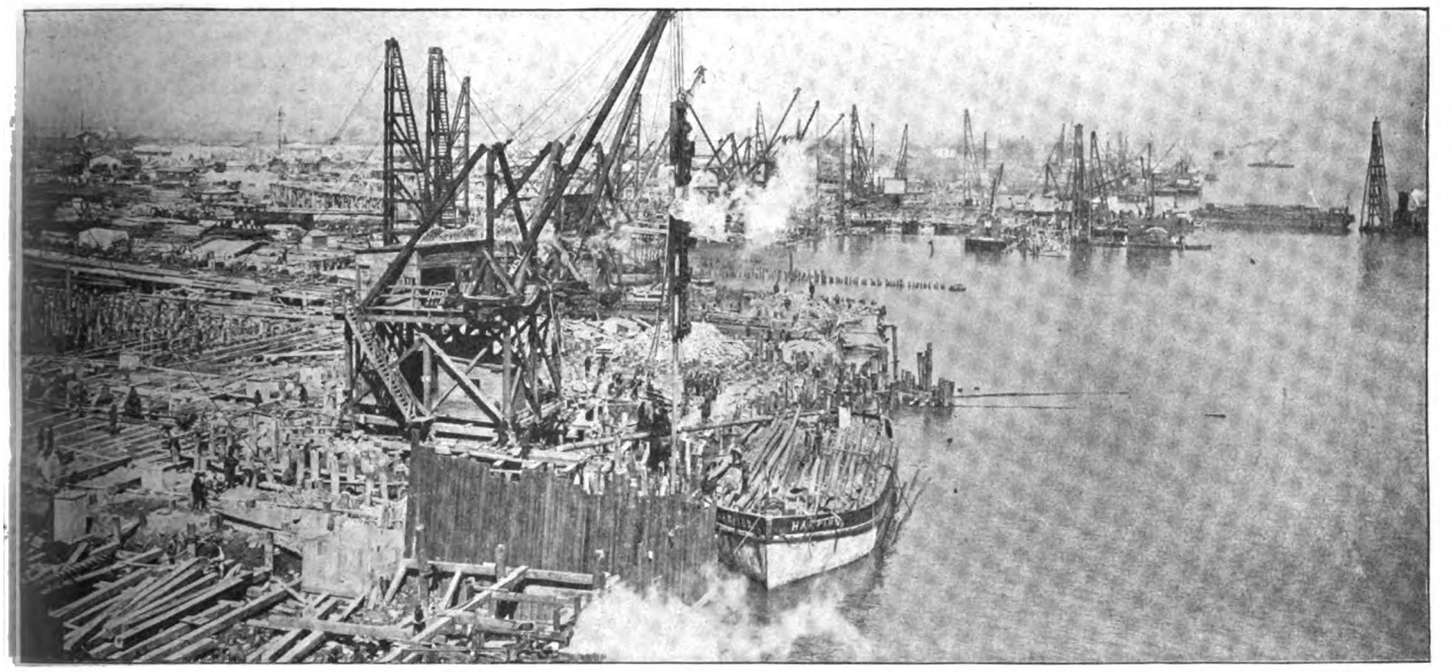
World's Greatest Shipyard at Hog Island

NO STORY of unswerving devotion to a high cause, of unrelenting tenacity and accomplishment in the face of the severest discouragements, and of truly American ideals and traditions fulfilled, eclipses that of the achievement at Hog Island. Here, on a site which seven months ago was an isolated waste of underbrush and marsh land, not even reached by a decent wagon road, the largest shipyard in the world, larger than the five biggest yards in this country a year ago, has been 65 per cent completed. In pushing the work there were times during the winter when the limits of human endurance were scarcely recognized, when the inability of the men to withstand the intense cold led to a labor turnover of many thousands of workers each week. In one week, in fact, approximately 35,000 names appeared on the payroll, and yet at the end of the week the working force numbered only about 20,000, or about the same as at the beginning. Hog Island for weeks was frozen to the rigidity of granite and the men were able to work no more than half an hour at a time in the icy blasts that swept down the Delaware valley. During these intense periods piles for the foundations of the shipways and important buildings were driven into earth softened by live steam or shattered by dynamite. At no time was progress seriously interrupted. The schedule in accordance with which ships are to be completed and launched at Hog Island, was based originally on the belief that orders to proceed with the construction of the yard were to be issued early last summer, in which event pile-driving would have been well completed before midwinter. Despite the fact that the contract authorizing the construction of the yard and the building of ships was not signed until Sept. 13, the terrible obstacles which the winter engendered were overcome to such effect that Hog Island now is ahead of its schedule. The schedule called for the laying of the first keel at this yard on Feb. 18. It was on Feb. 12 that the first keel actually was laid. The American International Shipbuilding Corp., which,



ERECTING FLOORS IN HULL NO. 492A AT HOG ISLAND YARD

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



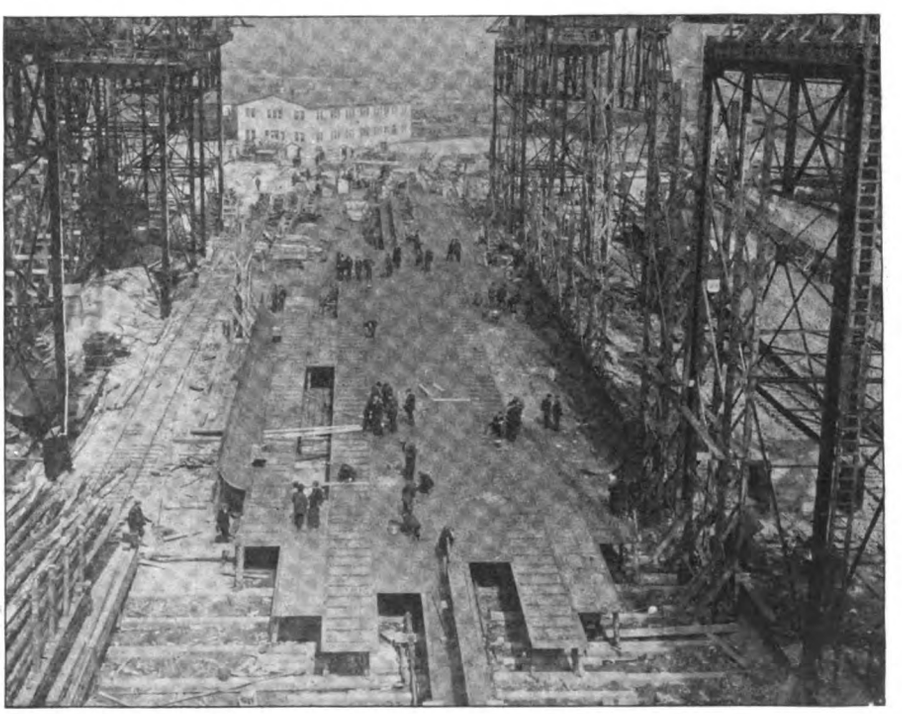
Corp., Showing a Few of the Fifty Shipways and Auxiliary Buildings Under Construction

Now Busy Building Ships to Win the War

as agent of the United States shipping board, is building and operating the Hog Island yard, recently issued this statement: "We can see no reason to believe that it will be necessary to change the schedules laid down in our contracts, which call for the delivery of 50 ships from Hog Island yard by the middle of December, 1918."

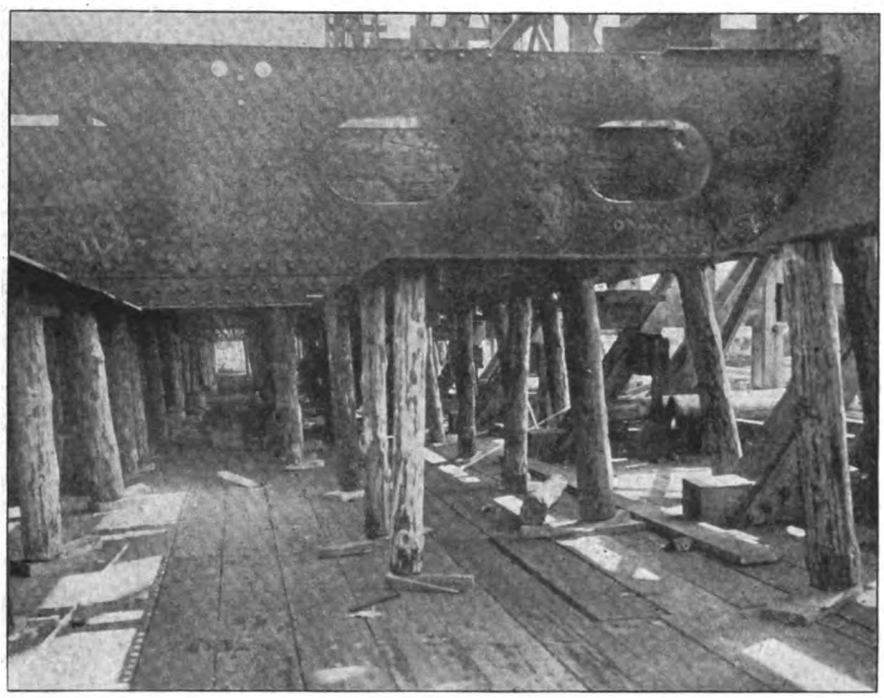
Although the cold weather and the delay in letting the original contract were the greatest handicaps to the builders of the Hog Island shipyard, there were countless other difficulties. When the plans for the yard were first made it was expected that all the ships to be built would be of the same size and type, namely, 7500-ton, 11½-knot, 400-foot, steel cargo carriers. The contract signed on Sept. 13, 1917, did call for 50 vessels of this type. On Oct. 23, however, was placed a second contract for seventy 8000-ton, 450-foot, 15-knot, combined troop and cargo carriers. To accommodate the larger vessels, it was found that instead of making all of the ways 491 feet long, it would be necessary to lengthen 30 of them to 541 feet. With the one type of vessel, only one material classification and storage yard would have been necessary; with the addition of a second type, additional material yards were required. It became essential to relocate buildings and make general changes in plans. As the yard now is being completed, ways are being provided for the simultaneous construction of twenty 7500-ton and thirty 8000-ton vessels. When the plant is in full operation, the output will be one ship every two working days.

The schedule calls for their completion and delivery to the government as follows: Twenty-five 7500-ton vessels within 13½ months from the date of the original contract, Sept. 13, 1917; twenty-five 8000-ton vessels in 15 months; twenty-five 7500-ton vessels in 18½ months; twenty-five 8000-ton vessels in 20 months, and thirty 8000-ton vessels in 22 months. A third contract just has been placed which calls for an additional sixty 7500-ton freighters. Officials of the American



LAYING THE BOTTOM PLATING FOR A CARGO CARRIER

Generated on 2024-07-26 17:08 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN



WOODEN TIMBERS SHORE UP THE SHIP WHILE IT IS BEING BUILT—NOTE HEAVY STEEL CONSTRUCTION

International Shipbuilding Corp. say that the only anxieties with respect to delays which they feel at present, are occasioned by difficultes in obtaining shipments of steel at a rate adequate to the capacity of the forces at the yards; owing to the improved schedules at which steel mills are operating, however, they look for an early enlargement in the supply of steel.

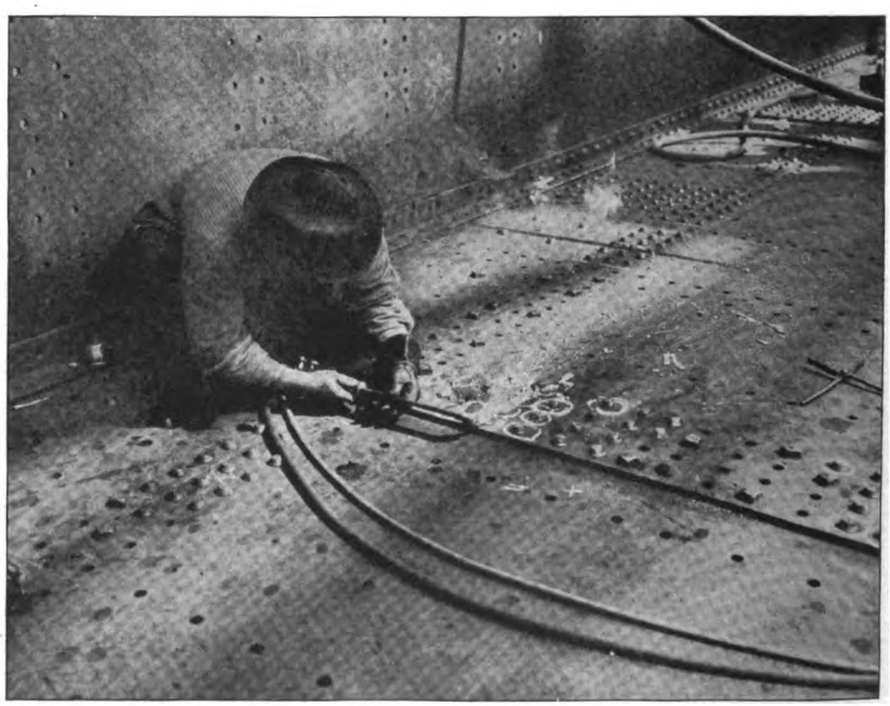
Staggering the Imagination

An idea of the immensity of the plant at Hog Island may best be conveyed by figures. The combined water requirements af the yard call for a capacity that would supply a city the size of Minneapolis. The sewer system would answer the needs of a city of 30,000 people. For operating the machinery throughout the plant, motors are required having a connected load of more than 28,000 horsepower, which is equal to the maximum demand for power in the city of Providence. The air compressor equipment at Hog Island is exceeded in size by only one other installation in the world, that of the Rand mines in South Africa. Some 75 miles of standard gage railroad track have been laid in the yard; the rolling equipment on these tracks comprises 20 locomotives, 500 freight cars and 50 passenger coaches. The coaches are used exclusively for transporting the workers between Hog Island and Philadelphia. In addition to the railroad trackage, 15 miles of substantial roadway have been built for hauling with motor trucks. Approximately 25 acres of the shipyard site are being placed under roof.

Hog Island was designed primarily as a ship assembling rather than a shipbuilding yard. That is, all the various ship parts and materials are manufactured elsewhere, in some 3500 plants throughout the country, and shipped in such completed form that they may be put right into place in the hulls without further finishing. Therefore, the shop buildings at the yard are devoted entirely to the maintenance of working tools and equipment, to the manufacture of templates, and to such corrective work as occasionally is required on fabricated plates and shapes and other parts. Of such magnitude is even this work at the Hog Island yard, however, that some of these shop buildings are nearly 700 feet long.

Over a Mile of Shipways

The 50 shipways extend more than a mile along the river front. For efficient management, they are divided into 10 groups of five ways each, all under a central supervision. Each group is provided with a ways administration building, a service building, a tool house and a compressor house. Between each two ways are two steel derricks, each provided with four cantilever arms. Thus each way is served by eight arms which command all parts of the way. Forty of the 50 ways are of wood pile and timber deck construction; the remaining 10 are entirely of concrete. The method of sinking the concrete piles is to drive sheet steel sheaths which are filled with the concrete. Work on the wet basins or fitting out piers, where the ships will be provided with turbines, boilers, pumps, lighting sets, steering gears, engines, windlasses, joinery work, winches, refrigerators, deck houses, piping, etc., now is under way. In order to provide the necessary depth of water, it is necessary to remove 3,500,000 cubic yards of mud; the latter is being pumped into impounding basins on marsh land which



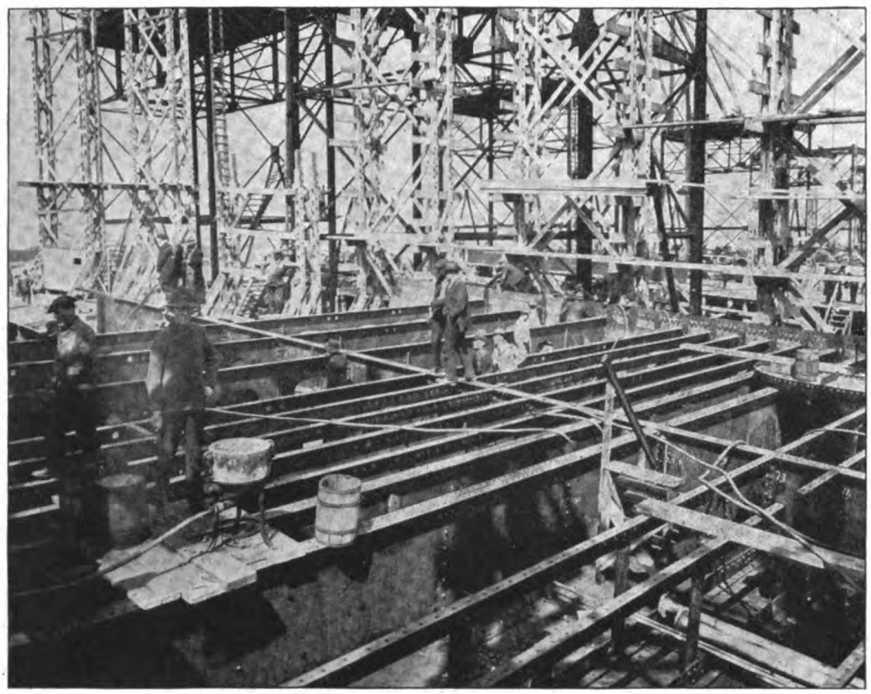
RIVETS THAT DO NOT PASS INSPECTION ARE CUT OUT WITH AN OXYGEN TORCH AND REPLACED

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

thus is being reclaimed. The fitting out piers will be seven in number, each 1000 feet long, and they also will occupy more than a mile of river front immediately south of the ways. Each pier will accommodate four hulls, making the total simultaneous fitting out capacity ample for 28 hulls. This capacity corresponds with that of the ways, since less time is required for fitting out than for assembling the hulls.

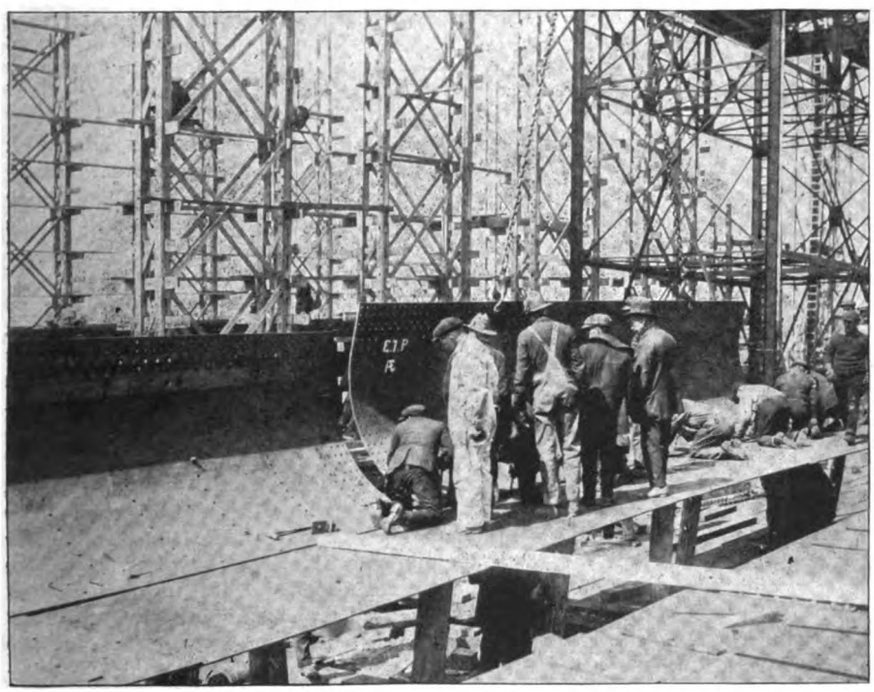
The Agent of the Government

The American International Shipbuilding Corp.'s status is solely that of agent of the United States shipping board in building and operating the shipyard. All the work entrusted to the corporation is being done under the approval of the United States shipping board, with Rear-Admiral F. T. Bowles, assistant general manager, in direct charge. The contract for building the yard and ships is held by the American International Corp., which owns all of the stock of the American International Shipbuilding Corp. The site of the yard, 846 acres, is the property of the American International Corp., which purchased it at $2000 per acre. The United States shipping board now is paying a rental for the site equivalent to 6 per cent per year on the purchase price, and it holds the privilege of purchasing the site at the purchase price at the end of the war. The American International Corp. holds the privilege, in case the United States shipping board does not exercise its option, of acquiring the shipyard at its appraised value at the end of the war. In the meantime, all expenses and the cost of labor and materials for building the yard and the ships are being defrayed by the United States shipping board.



THE DOUBLE BOTTOM IS FORMED BY HEAVY GIRDERS CONNECTING THE INNER AND OUTER SKINS OF PLATING

With regard to the fees which the government is paying the American International Shipbuilding Corp., officials of the company are content to allow the facts to speak for themselves. The only fees which the company will receive are $41,000 for each completed 7500-ton vessel, and $65,000 for each 8000-ton vessel. Inasmuch as the estimated costs are $1,100,000 for the 7500-ton and $1,650,000 for the 8000-ton vessels, respectively, the fees are equivalent to approximately 4 per cent. However, while the subcontractors who are doing various parts of the shipyard construction work are paid fixed fees approximately 5 per cent on the cost, the American International Shipbuilding Corp. is not receiving any remuneration whatever for such construction work, or its supervision. In fact, the company is donating its services in this direction. Comparing the fees for building the vessels with the combined cost of the vessels and the yard, they are equivalent to some 3½ per cent. In the construction of the yard, the company enjoys the cooperation of Stone & Webster, who furnished the services of more than 400 skilled construction engineers. The American International Shipbuilding Corp. also utilizes the services and facilities of the New York Shipbuilding Corp., which is owned by the American International Corp.



AFTER BEING CUT AND ROLLED, TO SHAPE, THE BILGE PLATES ARE FIRST BOLTED IN PLACE AND THEN RIVETED

Bonuses and Penalties

The contract between the United States shipping board and the American International Corp. provides an inducement in the form of premiums to be paid to the latter company for speedy delivery of the vessels. The government will add $500 to the $65,000 fee for the 8000-ton vessels for each day gained in delivery up to a maximum of $17,500, and a

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

penalty to the same amount will be exacted for each day the company falls behind in its schedule, also up to a maximum of $17,500. In case the cost of the vessels proves less than the estimated figure, the American International Corp. will be privileged to share in this saving to the extent of 50 per cent, providing the amount going to the corporation does not exceed $17,500. It also stands to share in excess costs on the same basis. In the case of the 7500-ton vessels, the premium or penalty for days gained or lost in delivery, is $300 per day; the maximum penalty or premium is $14,000. The shipping board also will pay the corporation 50 per cent of any saving from the estimated cost, and the corporation shares the excess in cost on the same basis up to $14,000.

Hog Island is on the west shore of the Delaware river, about 12 miles below Philadelphia. It is an island no more, as the narrow channel which separated it from the mainland has been filled in. Prior to Sept. 13, 1917, the island's sole claim to fame was its use as an occasional picnic ground to which excursionists from Philadelphia were transported by ferry. The only buildings on the island were a ferry house and a few ramshackle barns and sheds. The considerations which led to its selection as a shipyard site, were its proximity to a large city which had a certain amount of housing facilities and from which a certain amount of labor might be drawn; it was on deep water, having a 35-foot channel, which was well inland and away from enemy attack, and it was in a district served by an established power plant of sufficient capacity to fill the requirements of the shipyard.

War Work Started with a Rush

It was in May, 1917, that the United States shipping board originally requested the American International Corp. to undertake the erection of a shipyard for the construction of 200 steel ships. Although the commencement of the work was delayed for four months, it began with a rush as soon as the original contract was signed on Sept. 13. By Sept. 15, Stone & Webster had the nucleus of the engineering organization on the job at Philadelphia and the work of surveying Hog Island actually had started. The actual work of clearing the island was begun on Sept. 17 with a force of laborers borrowed from a Philadelphia contractor. An employment department was organized and each day saw startling increases in the number of men at work. At times during the winter, the men numbered as high as 26,000. At present, there are about 21,000 workers at Hog Island, but it is expected that when the yard is working to capacity, approximately 30,000 men will be employed. The labor turnover now is well under 100 per cent per month, but the figure still is large enough to make hiring men an important feature of the company's activities. The employment department, therefore, has been located in quarters which are specially designed to facilitate the sorting out of the new men. Applicants for work, when they come to the yard, are introduced into a huge room, at one end of which are a number of booths, occupied by experts who examine the applicants in their qualifications for the particular work they desire. Those who are rejected are passed out to a street exit, while those accepted, are transferred to an employment room. An idea of the magnitude of the work of the employment department is conveyed by the size of the physical examination department. This is comprised of 25 booths arranged into groups of five each, so that five physicians examine five 5-men groups simultaneously. The physical requirements are as rigid as is necessary. The primary needs are that men have no infectious diseases, and that they be physically fit to do the work to which they are assigned. Before going to work, the men are conducted to the housing department, where they may make arrangements for dwellings or apartments, or if they desire, they may obtain a bunk in one of the barracks. They then are turned over to the foreman of the department in which they are to work. Incidentally, the United States shipping board now is working out plans for additional housing facilities in the neighborhood of Hog Island. Bunk houses already on the island have capacity for about 6000 men.

The handling of materials at a plant which has a capacity for using them as fast as the Hog Island shipyard, necessitates unusual methods. The supply department has charge of providing all material from locomotives and lead pencils to steam shovels, carpet tacks, cranes and common pins. All the steel, rivets, bolts and other materials for ship construction as they are received at the plant, are unloaded in one of two classification yards. One of these contains the material for 8000-ton vessels and the other for 7500-ton craft. These classification yards serve as feeders to a third yard, known as the day storage yard. In the classification yards the desired materials are assembled into carloads which are switched into the day storage yards. The following morning these cars are moved to the ways where they are needed. Loading the cars is accomplished with facility by means of locomotive cranes. The handling of the materials to be used at the fitting-out piers is being worked out along similar lines.

Fire fighting facilities constitute an important division of the comprehensive plan at Hog Island. Four fire stations provided with modern motor fire vehicles are located at strategic points, while a force of 100 firemen constantly is on duty. The guard system at Hog Island is comprised of 600 men, many of whom have seen service in the present war. They are commanded by a former major in the Canadian expeditionary forces, who received wounds in France which incapacitated him for further active military service. The guards have barracks of their own which are provided with a cafeteria and recreation hall.

Teaching Shipbuilding

One of the plans at Hog Island to draw recruits to the always insufficient supply of skilled labor, is a group of educational courses by which partly trained or untrained men may become specialized in one of the more important branches of work. This school has courses for erectors, chippers, caulkers, heaters and passers, shipfitters, riveters, carpenters, drillers, bolters, tool room boys, pipefitters, cutters and welders and machinists. The school was organized Feb. 1. The present enrollment is 600, while 2000 applicants are waiting to enroll. The courses require two days to six weeks, depending upon the previous training of the men and the ground covered by the course.

Accurate templates are imperative in building standardized steel vessels. Therefore, the work in the drafting and template departments is of a high order of importance. So are all the templates which are being used by fabricators in preparing the ship steel for the Hog Island shipyard, as well as the templates needed for installing piping and other equipment in the hull, have been made at Camden, N. J., with the assistance of the New York Shipbuilding Corp. All of this work in the future, however, is to be done right at Hog Island in a new ship template shop now being completed. The template shop has been provided with turbines, boilers and a complete piping system, all set up in the same arrangement as in a completed vessel, in order that accurate templates may be made for use in fitting-out work.

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Schwab's Formula for His Success

New Chief of Shipbuilding Program Has a Simple Recipe and Wants All Shipyard Managers and Workers to Copy It

SUCCESS of the Charles M. Schwab brand can be defined in two words: enthusiasm, rivalry. For this, there is the statement of the new director general of the Emergency Fleet corporation himself.

Furthermore, these two words sum up what Mr. Schwab considers the two essentials in holding production at a maximum. His success in translating government ship contracts into actual vessels will depend, according to Mr. Schwab, upon the degree to which he can instill these essentials of his own success into the half million men or so now at work on the new shipbuilding program.

* * *

The recipe for the Schwabian type of accomplishment was disclosed at the end of a busy day. The recital of the events of that day seemed to bear out Mr. Schwab's belief in what can be accomplished by his formula. He had witnessed, and delivered an address at the the launching of the TUCKAHOE in the quick time of 27 days after her keel was laid. The workmen at the plant of the New York Shipbuilding Corp. have had both qualities of the formula in mind when rushing the ship through to completion. Whatever they lacked in enthusiasm was vociferously in evidence at the close of a short address by Mr. Schwab which was punctuated with "boys, give it to them! Put your shoulders into it! Keep up the good work, and—down with the kaiser!" A little while later at Hog Island, Mr. Schwab aroused a similar demonstration of enthusiasm when he urged the workers by their efforts to cause the site of their yard to be known in the future as Victory island rather than Hog island. Later in the same day, in finishing an inspection of the Sun Shipbuilding yard, Mr. Schwab pointed out that "virtually the whole secret of my success in handling big things may be summed up in the two words—enthusiasm, rivalry. You can't get men to endure extraordinary labor unless you arouse enthusiasm. You can't get them to go a swift pace unless the man who tries to arouse them to such effort is himself the setter of the pace. Rivalry in the various shipyards goes hand in hand with enthusiasm. We have prizes and the less tangible but quite as potential incentives of proclaimed championships. The effect of this is to produce team work, first in the groups comprising the working force in each yard, and finally in the yard itself."

* * *

One of Mr. Schwab's confessed ambitions for years has been to be the largest shipbuilder in the company. In 1904, when he organized the Bethlehem Shipbuilding Corp. to take over the properties of the old United States Shipbuilding Co., he embarked for the first time upon a path that not only brought him to the position of the largest American shipbuilder, but won him his present post as director of the largest shipbuilding organization in the world as well. The scattered yards he purchased were put upon an efficient basis, and when the war opened Mr. Schwab was in control of around 40 per cent of the shipbuilding capacity of the country.

A TEAM OF MUTUAL ADMIRERS—E. N. HURLEY AND C. M. SCHWAB

His success in this field paralleled his development of the Bethlehem Steel Co., which he took over as a rundown property and transformed into one of the largest independent steel works in the country and the equal and finally the peer of the Krupp works in Germany. In the steel business, Mr. Schwab is an optimist and consistently extended his properties at a time when others were practising caution. The part his immense steel works and shipyards have played in promoting the cause of the allies Lord Kitchener was only too glad publicly to acknowledge. That similar approval is being gained in this country is evidenced by his selection as the man to put the final winning touches on the shipbuilding program.

* * *

At the recent Cincinnati meeting of the National Foreign Trade council,

(Concluded on Page 259)

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

U. S. Shipbuilding—Present, Future

Private Shipyards Must Be Encouraged by the Government if American Shipbuilders Are to Meet After-War Competition

By M. E. Farr
President, American Shipbuilding Co.

ONE of the greatest tasks confronting the world today is the replacing of ocean tonnage destroyed or incapacitated for use, through war operations. The sinkings of vessels by enemy submarines do not represent the total destruction of deep sea tonnage. The normal wear and tear, and the losses through collision, stranding and from other causes incident to operation under war conditions, have greatly reduced the world's tonnage. All of this tonnage must be replaced by the shipbuilders of the world, principally by Great Britain, Japan and the United States.

Encourage Private Enterprise

At the present time the energies of these countries are directed toward providing sufficient merchant tonnage to meet the war requirements and necessities of our allies. That our part of the undertaking will be performed there is little doubt, and at the same time a solid foundation for the development and protection of our foreign trade will be laid. In order to accomplish this vast program, the shipbuilder must have a free hand, unhampered by laws, restrictions and exacting requirements frequently imposed by governmental agencies, and he must also have the earnest co-operation of the government, labor and such manufacturers as are able to produce materials and equipment entering into the construction of steel and wooden vessels. Private enterprise and initiative in shipbuilding and shipowning should be encouraged and fostered by our government.

The urgent demand for ocean tonnage from foreign interests during the past two years led to the establishment of a large number of American shipyards, and the enlargement of existing concerns. This prepared the way for and gave stimulus to creating greater capacity to produce ocean tonnage. Our entrance into the war further increased these activities. Three shipbuilding plants of large capacity are now in course of construction by the shipping board. All the available shipbuilding skill and talent has been assembled to carry out a vast program of ship production. Special tools and equipment, far beyond the capacity of American makers, were necessary, and were, therefore, not immediately available for use.

On account of the limited supply of technical shipbuilders and skilled workmen, and lack of equipment, nearly every new plant has been delayed in getting under way, and ship construction work in the plants of going concerns has been retarded on account of the loss of important men to the new enterprises.

It is essential that shipbuilding plants be located where favorable weather conditions prevail, where the climate is equable and housing conditions are ample and good, and where an adequate supply of skilled, semiskilled and common labor is obtainable. It is also important that such plants be situated on direct rail lines tapping fuel and material supplies, and in localities where economies in construction costs can be brought about.

In order to compete with our foreign rivals after the present war is over, we must be able to produce ships equal in quality, cost and economy of operation, or lose in the race for maritime supremacy or equality. The American shipbuilders must, therefore, prepare for the strong competition, by providing their plants with modern tools, machinery and equipment, and what is still more important, by creating technical and operating organizations of the highest order and efficiency.

After-War Competition

Our leading post-war competitors will be Great Britain, Japan and Germany, although other countries will take an important part in ship production. The great potential resources in labor and material in countries not heretofore engaged in shipbuilding, may yet be developed and these nations become powerful factors in ship production.

The most reliable reports now obtainable show that the production of new ship tonnage overbalances that destroyed. A large amount of new American tonnage will soon be available, and production will rapidly increase in volume until an ocean-carrying capacity is provided fully ample to meet war and commercial requirements.

Comparative Labor Costs

Owing to high wages and the prevailing standard of living, construction costs in this country are excessive and compare unfavorably with conditions in Great Britain and Japan. The average daily wage for a 9-hour day in British and a 10-hour day in Japanese yards is as follows:

	Great Britain, Dec. 1917	Japan, 1917
Skilled	$2.16 to $2.79	75c to 90c
Semiskilled	$1.94	70c
Unskilled	1.81	60c

compared with the present wage for an 8-hour day in leading American yards, as follows:

Skilled	$5.80
Semiskilled	4.40
Unskilled	3.20

Piecework rates in American yards are proportionately higher.

The standardization of ships has come to stay. This standardization may be applied to the conventional or the fabricated type. Variations in size and arrangement of steamers are necessary to meet the requirements of special trades and commodities, but in any event the ship should be of standard design.

Recent reports concerning concrete ship construction are encouraging, and it is hoped that this method of construction will stand the tests of service and become an important factor in our merchant marine.

A committee consisting of representative shipbuilders, similar to the council associated with the British admiralty, would be of great assistance to such of our governmental agencies as are concerned in the production of merchant ships.

While the production of ocean tonnage may not have fully come up to the hopes and expectations of many, it must be remembered that the shipbuilding industry in America is in process of development and the construction program of the navy and the shipping board is vastly greater than ever undertaken by any nation.

Presented at the fifth National Foreign Trade convention, Cincinnati, April 19.

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Westinghouse Marine Engine Plant

Heavy Demands by the Government Necessitated Construction of Big Works to Manufacture Steam Turbines and Reduction Gears

THE demand for ship propulsion machinery has made it necessary for the Westinghouse Electric & Mfg. Co., Pittsburgh, to tremendously increase its capacity during the past few months. To this end a new plant has been erected in record time. The site chosen is in South Philadelphia, nine miles from the city proper. This location is known as Essington. Two railroads, and electric line and the Delaware river afford means of transportation.

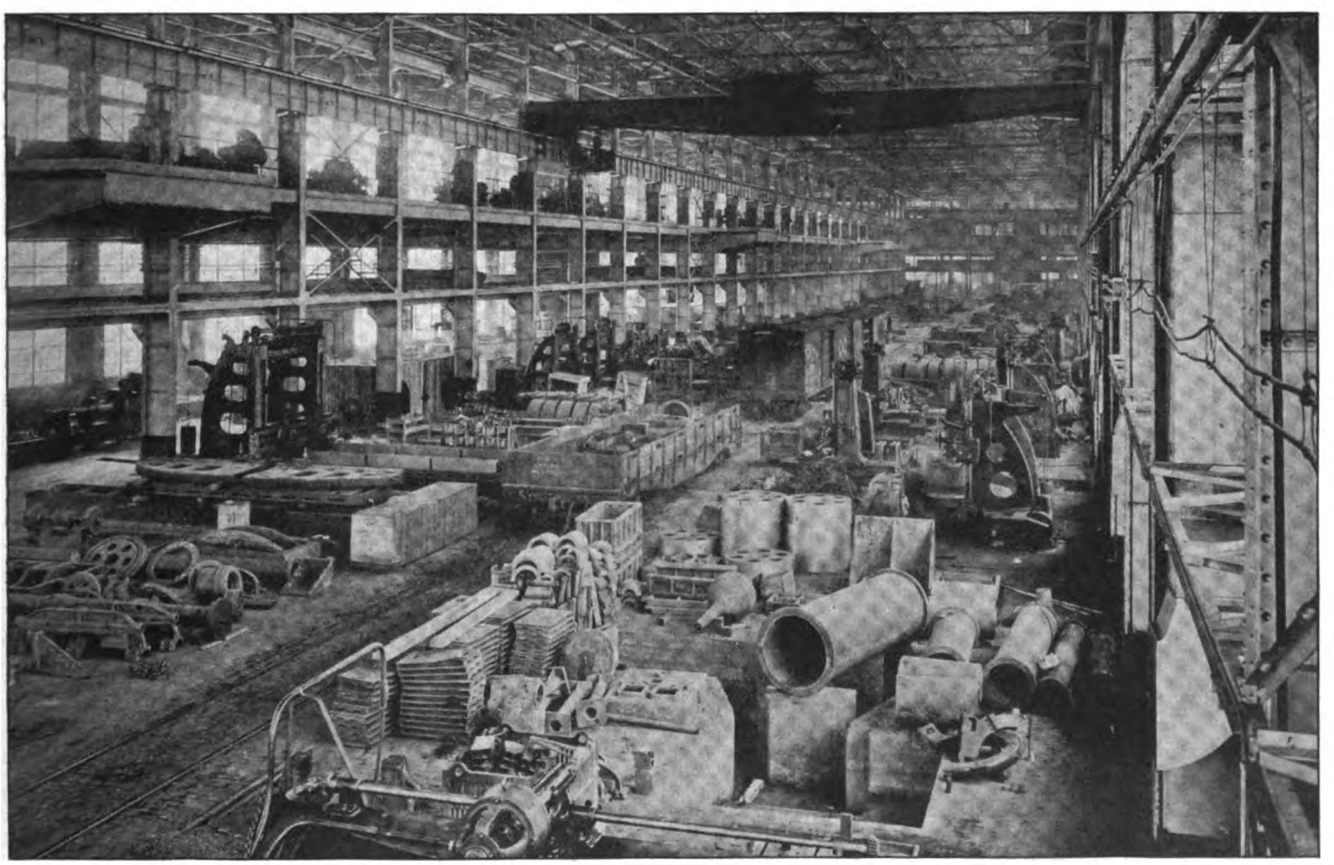
The present site was a field a little over a year ago but at the present time it contains seven large buildings and 2500 persons are employed. The buildings comprise two machine shops, an erecting shop, a powerhouse, a forge shop, a foundry and a storage building for patterns. The floor space covered is 600,000 square feet. The new plant, it is expected, will in time compare favorably in size with the company's works at East Pittsburgh which at the present time employs approximately 25,000 hands and covers 100 acres of floor space. A portion of the company's South Philadelphia property will be devoted to a townsite capable of accommodation of 5000 persons.

The Philadelphia Electric Co. will supply the plant with electric current at 66,000 volts during the summer months. During the winter months the Westinghouse company will generate its own power with steam turbines. This is considered an economical arrangement as the exhaust steam can be used for heating in the winter. Again, the demands on the power company are comparatively heavy during the winter months; therefore this plan relieves it of an extra load.

Substations are located at various parts of the plant for the distribution of current. This is effected by means of lead covered cables laid underground. The current is stepped down to 6600 volts before it goes to the various buildings. Here the current is changed to the proper kind and character for the work to be performed. The substations also contain synchronous moter-driven air compressors which supply air for manufacturing purposes.

An open canal has been dug to the Delaware river which supplies water for all purposes except drinking and cooking. The canal terminates in a reinforced concrete basin on the testing floor in the erecting shop where a large supply of water is needed for testing purposes. From this basin water is also carried to the various other buildings. A similar and parallel canal has been provided; it serves as a storm sewer and outlet.

H. T. Herr, vice president of the Westinghouse company, had charge of the erection of the plant. He was assisted by R. B. Mildon who had general charge of the construction work. The plant was erected by the Westinghouse Church Kerr Co. Calvert Townley, assistant to E. M. Herr president of the Westinghouse Electric & Mfg. Co., handled all business relations which were subject to Mr. Herr's final approval.

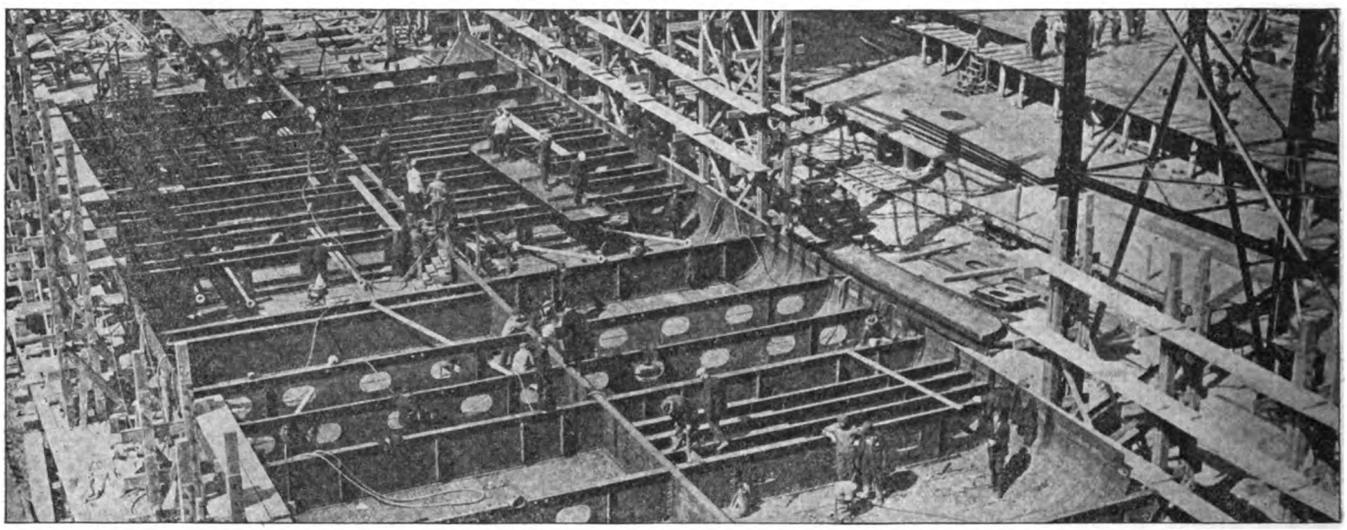


THE ERECTING SHOP IS ONE OF THE PLANT'S MOST IMPORTANT DEPARTMENTS—HERE THE TURBINES ARE ASSEMBLED

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

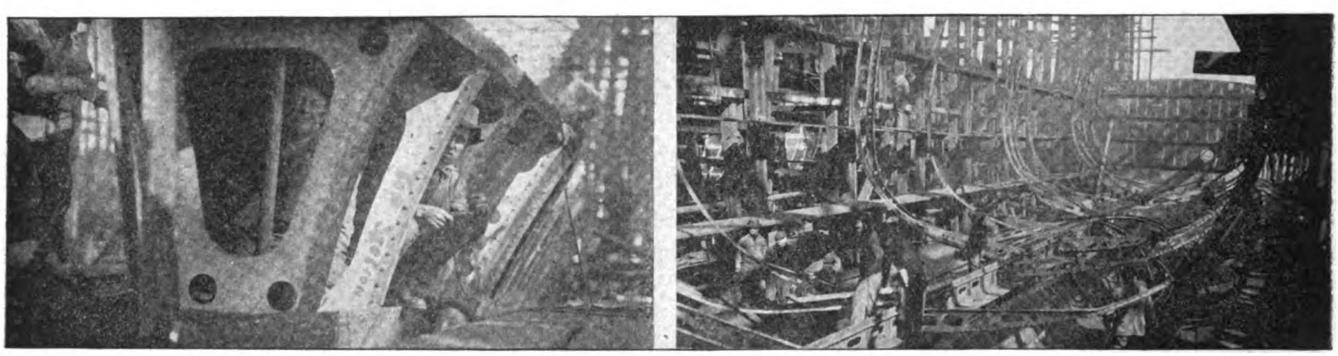
Photographs From Far and Near

Contributions For These Pages Are Solicited



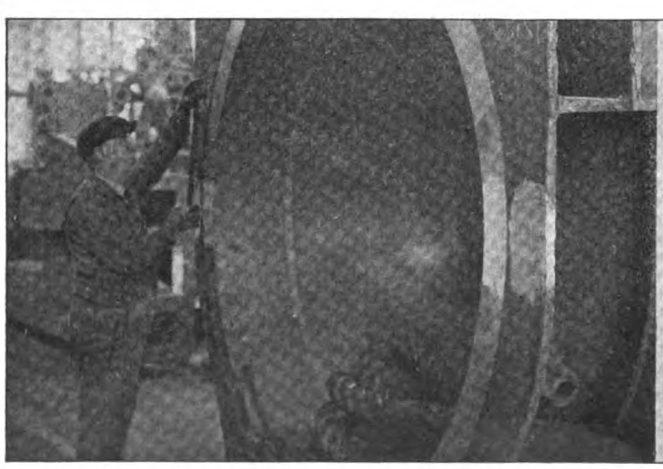
STEEL FREIGHTER RAPIDLY TAKING SHAPE IN A LARGE NEW EASTERN YARD

One of the busiest places in the country at the present time is the Hog island shipyard. The vessel in process of construction soon will be carrying arms and food to our fighting men. This yard is being rapidly equipped and shortly will be in a position to turn out vessels in record time



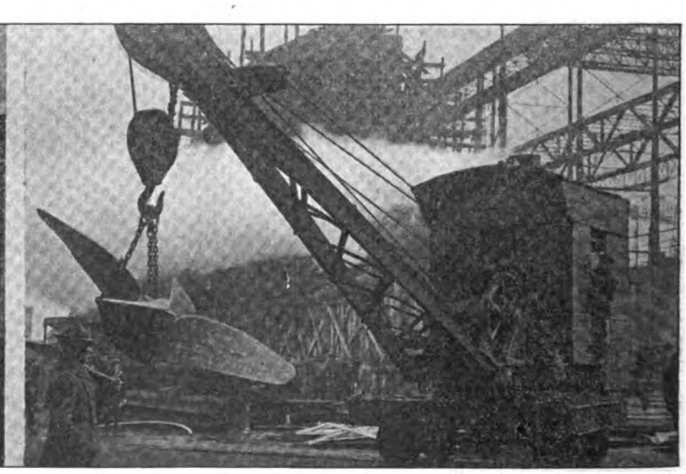
HOW A DESTROYER LOOKS A WEEK AFTER ITS KEEL HAS BEEN LAID

The view at the left shows the bow framing ready for plating. The view at the right shows some of the midship frames in position. America's destroyer fleet is growing almost daily and within a year is certain to be the largest in the world



MEASURING A MARINE ENGINE CYLINDER

The machinist is tramming the locations for the studs which hold the cylinder head in place



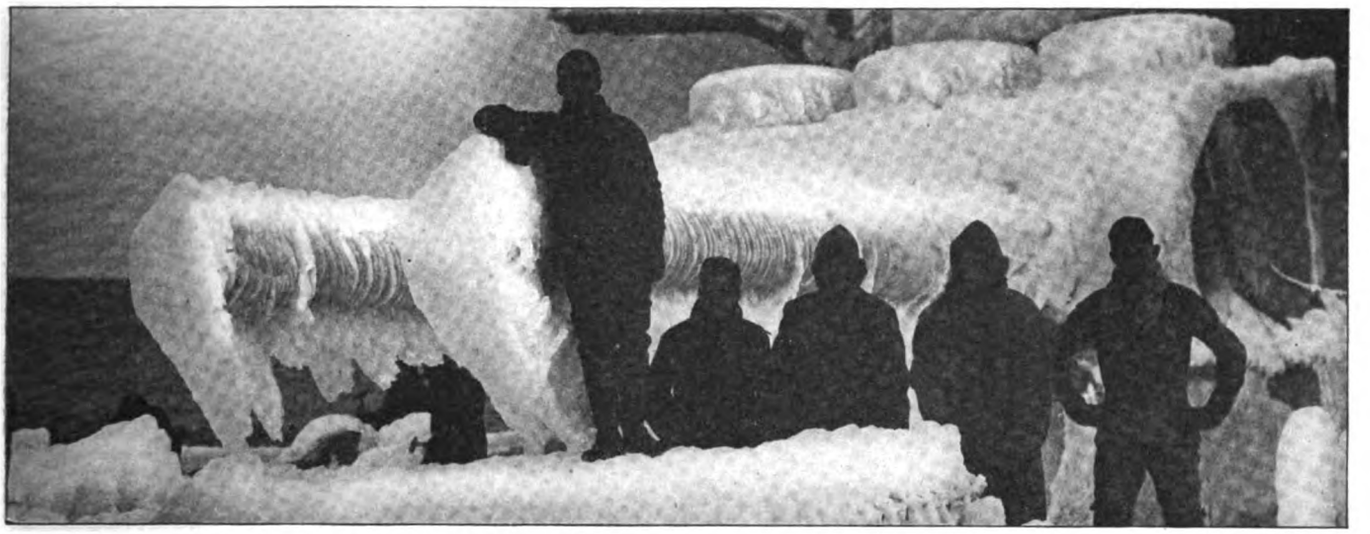
MODERN EQUIPMENT EXPEDITES SHIPBUILDING

Heavy propeller castings are rapidly handled and conveyed by special cranes in our large shipyards

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

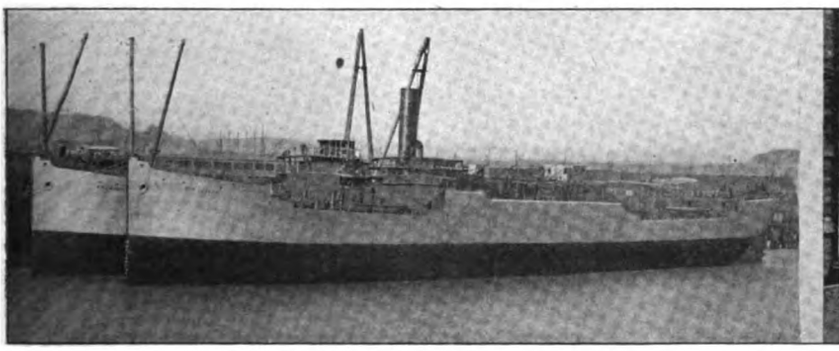
Latest Marine News in Pictures

Payment Will Be Made For Acceptable Photographs



RIGORS OF A NORTH ATLANTIC WINTER HAVE NO TERRORS FOR OUR BLUEJACKETS

What the forward deck of a battleship looks like after bucking a heavy sea for several hours. The coating of ice over the guns and turrets is caused by spray that freezes as fast as it falls. The seamen must be just as ready for emergencies as their brothers on the tropical station



WESTERN YARDS SET PACE FOR COUNTRY

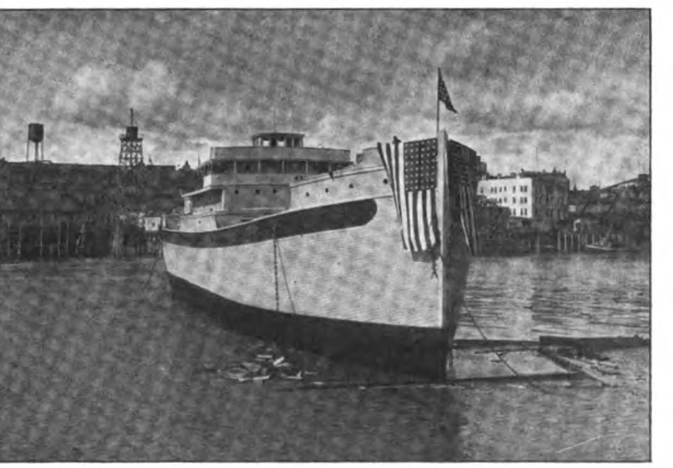
These new steel cargo carriers built on Pacific for carrying supplies to Europe are now in commission

WHAT THE INTERIOR OF A CONCRETE SHIP LOOKS LIKE

This view was taken aboard the FAITH, largest concrete ship ever built

DECK VIEW OF WORLD'S LARGEST CONCRETE SHIP

Millions have been appropriated by congress to permit a thorough test of the "stone" boats. The boat illustrated is now on her trial trip



WOODEN SHIP PROGRAM IS SHOWING RESULTS

The vessel shown is the WALLOWA, recently launched at Portland, Oreg. She is considered a good model of modern wooden ship construction

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

How Wooden Ships Are Laid Off

Second of Two Articles on the Geometry of Wooden Shipbuilding— This Installment Treats Chiefly of Methods of Fairing the Lines

By Samuel J. P. Thearle

THE half-breadth plan has next to be drawn upon the floor; and here we may again note that lines now being used, which are curved in the body plan, will be straight in the half-breadth plan, and vice versa. Before proceeding to copy the half-breadth plan from the body plan, it should be noticed that, owing to the new level lines which have been pencilled on the sheer drawing, the half-breadth plan to be drawn upon the floor will be totally dissimilar in appearance to that given in the design. But if the base line of the sheer draught is parallel to the water lines, and the body is therefore given in that drawing as shown in Fig. 5, the additional work of copying the body by new lines, and then transferring the latter to the half-breadth plan, will be unnecessary.

Having already drawn on the floor the middle line of the half-breadth plan, and the projections of the square stations in that plan we proceed to copy the level lines from the body into the half-breadth plan (see Fig. 6).

Straight-edged battens are set to the middle lines of body and half-breadth. Then measure on a staff, whose end is kept against the former batten, the distance from the middle line to where a level line *ab* cuts each square station 1, 2, 3, etc., in the body plan, and transfer these distances to the corresponding square stations in the half-breadth plan, by setting the end of the staff against the middle line batten of that plan, and marking the distances out on the respective square stations. A batten is then bent so as to pass fairly through as many as possible of these points, and the line a_2 b_2 is chalked in, this process being performed for each level line. Still referring to Fig. 6, square down from the sheer plan to the middle line of the half-breadth plan, the point of intersection a_1 of the level line with the fore edge of rabbet of stem, and set off on this perpendicular line the half siding of stem at this height as measured from the body plan. Then end the level line by making a tangent to a circle whose center is the point thus found, and whose radius is equal to the thickness of the bottom plank taking care to do so on that side of the circle nearest to the middle line of body. We must again remark that this ending is only approximate unless the stem is square to the level line. For the fore edge of the rabbet is assumed to be the axis of a curved cylinder, the radius of which is the thickness of the bottom plank; and the surface of the timbers is supposed to be in contact with this cylinder along the line of the center of rabbet. It is evident, then, that unless the section of the cylinder is made square to the axis it will be elliptical. Another error is, however, introduced owing to the tapered siding of the stem below the lower cheek.

Another Method Gives Better Results

A more correct ending is, therefore, obtained by making the level line end as a tangent to an ellipse of greater or less eccentricity in proportion as the stem deviates much or little from the condition mentioned. However, practically, these endings are sufficiently correct, being within the limits of error to which work is carried out upon the mold-loft floor.

It is necessary at this stage of the work to get in the bearding line, *i. e.*, the true line of the after edge of rabbet of stem or upper edge of rabbet of keel, that given in the sheer draft being not sufficiently correct to be copied from thence to the floor. The bearding line is the line of the intersection of the surface of keel, deadwood, stem, and stern post, with the outer surface of the frame timbers; hence a rough, and, indeed, a common way of finding this line, is by measuring in the body plan the half siding of stem at each level line, and drawing, in the half-breadth plan, a line parallel to the middle line of that plan at a distance equal to the half siding thus found. The intersection of this parallel line with the corresponding level line in the half-breadth plan will be, approximately, a point in the bearding line; and if this point be squared into the sheer plan to the corresponding level line, we shall have an approximation to a point in the bearding line in that plan. Other points in the bearding line below the level lines in the sheer are obtained by measuring in the half-breadth plan, the half siding of keel at each square station, and drawing a line in the body parallel to the middle line of that plan, and distant from it the half siding thus found; the intersection of this parallel line with the corresponding square station, when transferred to the respective square station in the sheer plan, will be an approximation to a point in the bearding line in that plan. There is an error in this method of obtaining the bearding line due to the same causes as the incorrectness of the endings of the level lines already referred to. However, it is usually sufficiently correct for all practical purposes, and if slight allowances be made in ending the lines by substituting ellipses for circles according to the discretion of the draftsman, no error worthy of notice will occur. At some yards it is usual to obtain the bearding line and middle of rabbet by the following method, which is obviously more accurate than the preceding, although even this is not theoretically correct, as the taper of the stem is not taken into account. At any selected points *A* and *C* on the fore edge of stem, Fig. 7, in the sheer plan, about the

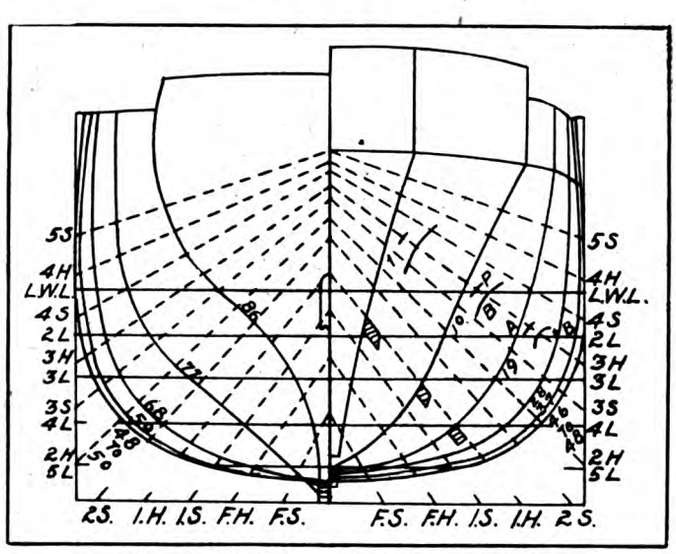


FIG. 5—WATERLINES AND DIAGONALS

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

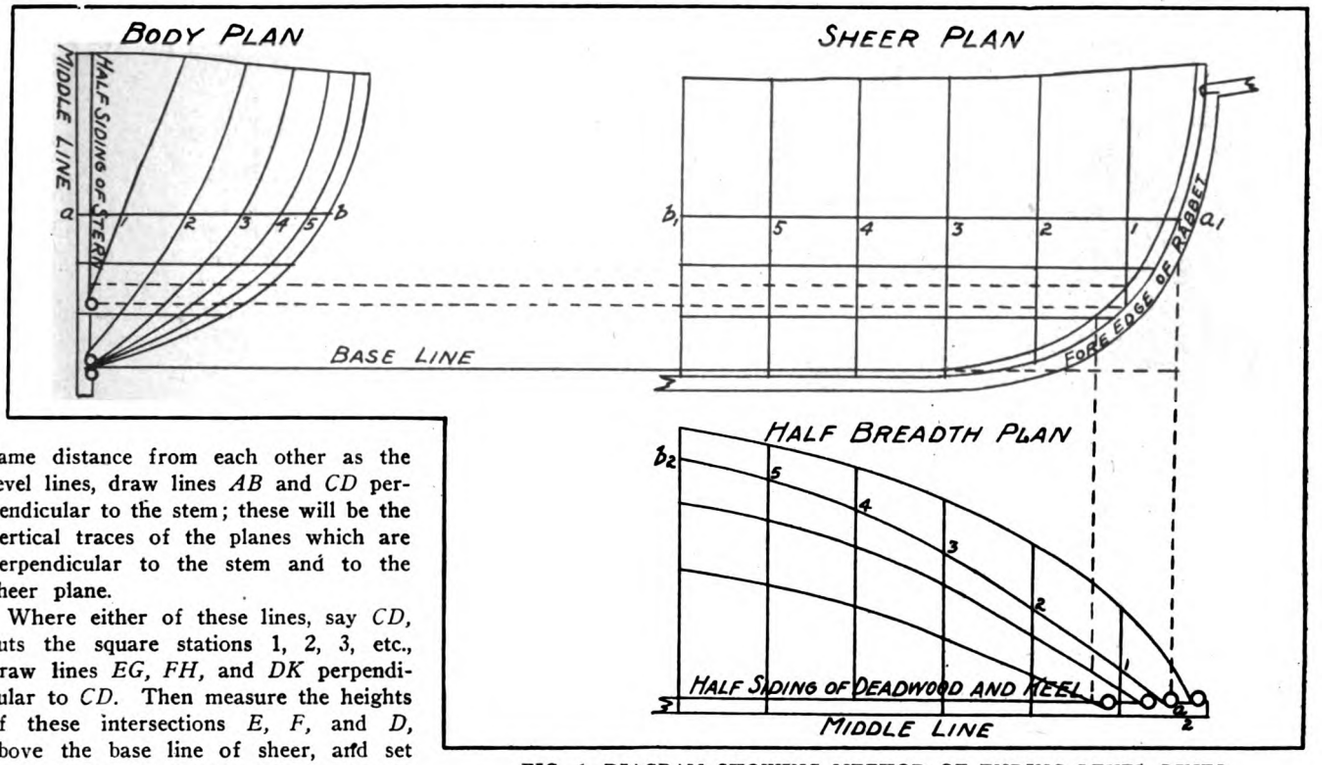


FIG. 6—DIAGRAM SHOWING METHOD OF ENDING LEVEL LINES

same distance from each other as the level lines, draw lines *AB* and *CD* perpendicular to the stem; these will be the vertical traces of the planes which are perpendicular to the stem and to the sheer plane.

Where either of these lines, say *CD*, cuts the square stations 1, 2, 3, etc., draw lines *EG*, *FH*, and *DK* perpendicular to *CD*. Then measure the heights of these intersections *E*, *F*, and *D*, above the base line of sheer, and set them up from the base line of body upon the middle line of that plant at E_1, F_1, and D_1. Next measure the perpendicular distances of these points E_1, F_1, D_1 from the respective square stations in the body, and set them off from the perpendicular line *CD* in the sheer upon the corresponding lines *EG*, *FH*, *DK*. Pass a curve through these points *G*, *H* and *K*, and we have the form of a section of the bow made by a plane which is perpendicular to the stem and to the sheer plane, the section being rabatted upon this latter plane.

To end this section, measure the height of the point *L* (where the line *CD* cuts the fore edge of rabbet) above the base line of the sheer plan, and set it up on the middle line of body, measuring from the base line of that plan. Then take the half siding of stem at that height, and set it out from the point *L* perpendicular to *CD;* with the point *S*, so found, as center, and with a radius equal to the thickness of the bottom plank, sweep a circle, and end the curve *KHG* as a tangent to this circle upon the side of it nearest to *CD*. A line *SM* drawn through the center *S* of the circle parallel to *CD*, will intersect the curve *KHGT* in a point *M*, from which a line *MP* perpendicular to *CD* will determine a point *P* on the latter which will be a point in the bearding line. A perpendicular *TO* from the point of contact *T* of the curve with the circle upon the line *CD*, will give a point *O* in the middle of rabbet. By following a similar course with the other perpendicular lines *AB*, etc., points are obtained by which the bearding line and middle of rabbet may be drawn. Both body and half-breadth plans are now upon the floor, the latter having been obtained from the former.

In drawing the lines of the half-breadth plan, it will be found that they do not pass through all the

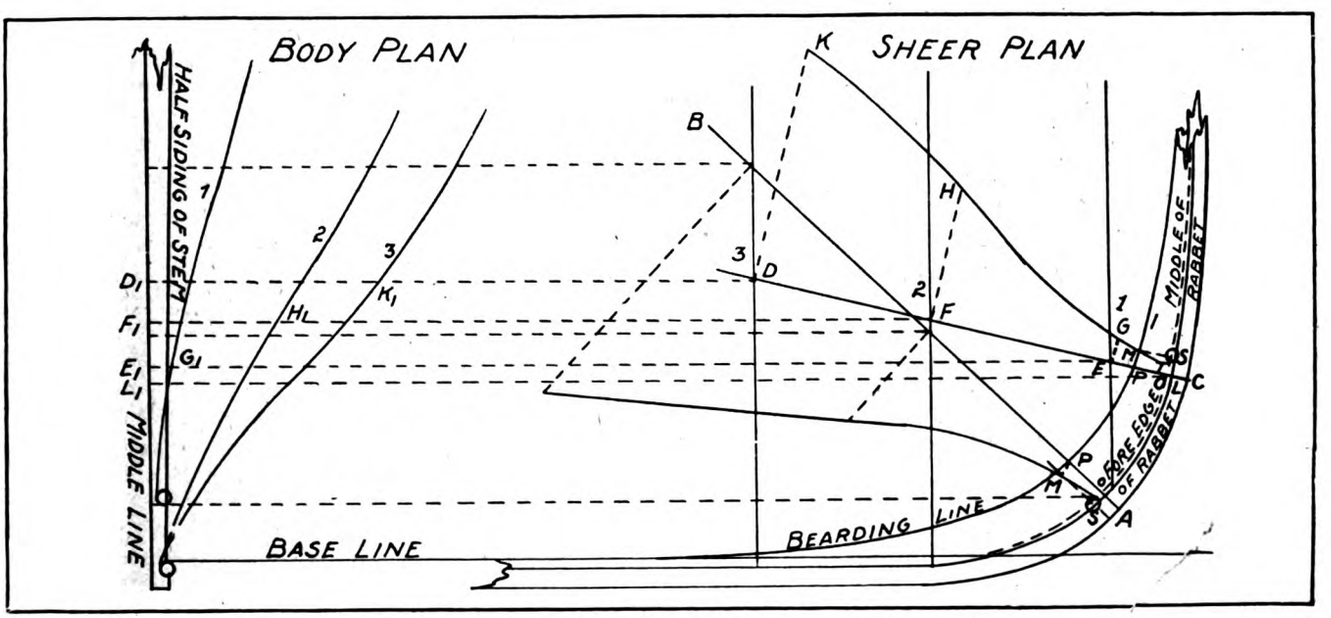


FIG. 7—CORRECT METHOD OF DRAWING BEARDING LINE

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

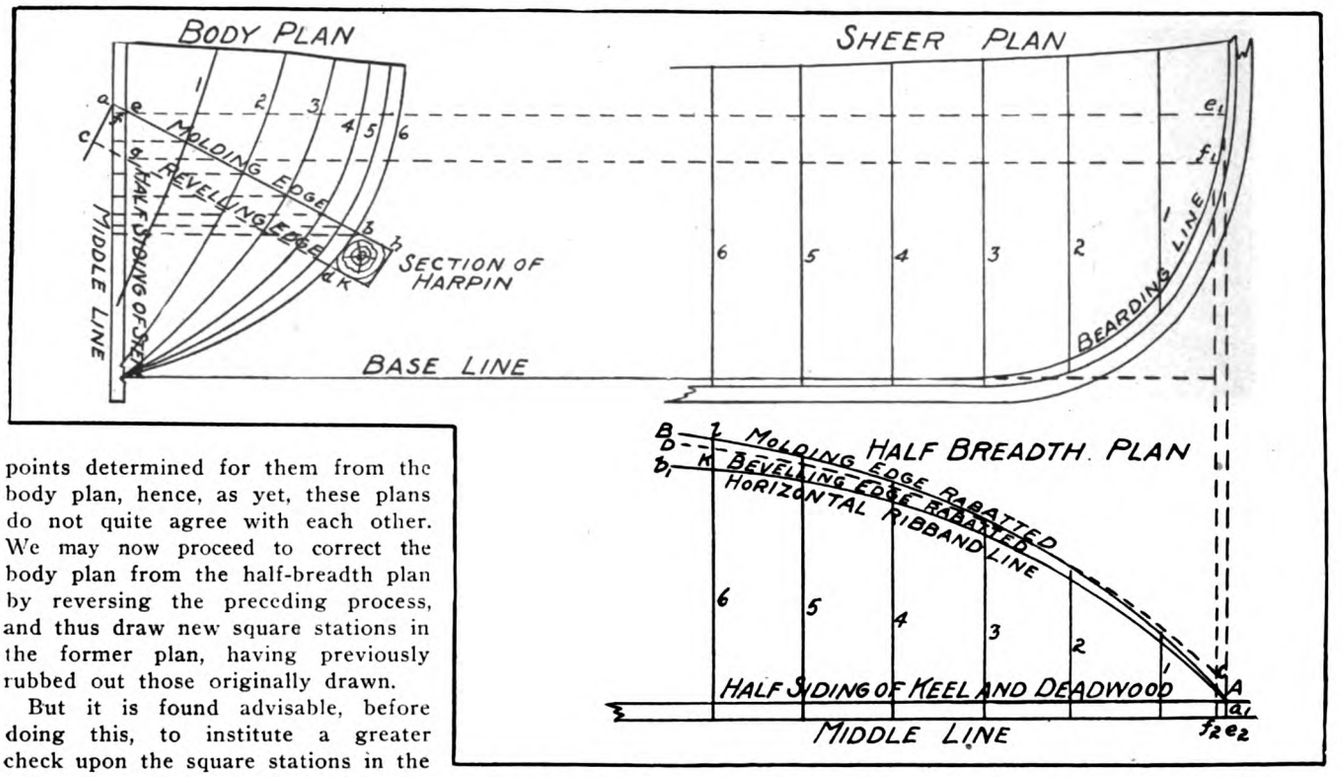


FIG. 8—DIAGRAM SHOWING METHOD OF DRAWING A HORIZONTAL RIBBAND LINE

points determined for them from the body plan, hence, as yet, these plans do not quite agree with each other. We may now proceed to correct the body plan from the half-breadth plan by reversing the preceding process, and thus draw new square stations in the former plan, having previously rubbed out those originally drawn.

But it is found advisable, before doing this, to institute a greater check upon the square stations in the body plan, than can be made with level lines only. This is done by projecting and rabatting upon the half-breadth plane the intersections of the diagonal planes, already drawn, with the surface; and by projecting upon the sheer plane the intersections, with the surface, of planes paralliel to that plane. The two sets of lines obtained by treating the diagonal planes as described, are termed diagonal lines and horizontal ribband lines respectively; while the lines obtained by the intersections of the planes parallel to the sheer plane, are known as bow lines when in the fore body, and buttock lines when in the after body.

The diagonal lines and horizontal ribband lines are valuable as checks upon the fairness of the ship, inasmuch as, being in planes which are nearly perpendicular to her surface, they give more determinate intersections; besides which, they afford an excellent criterion of the nature of that surface.

Lines Used for Testing

The bow and buttock lines are valuable only at the extremities of the ship; and, there, more as a criterion by which the experienced draftsman can decide whether or not the character of the surface is such as it should be, than as a means of fairing the body, owing to the general indeterminateness of their intersections.

Hence, some draftsmen test the fore and after ends of the ship by bow and buttock lines, before proceeding to fair the body; as it sometimes happens when the body has been carefully faired by level lines, by "running in" a few bow and buttock lines, a radical defect in the character of the surface is discovered, which necessitates a repetition of the whole fairing process.

Before proceeding to fair the body by means of the diagonals, or lines of heads and heels of timbers, it must be remarked, that as neither of the

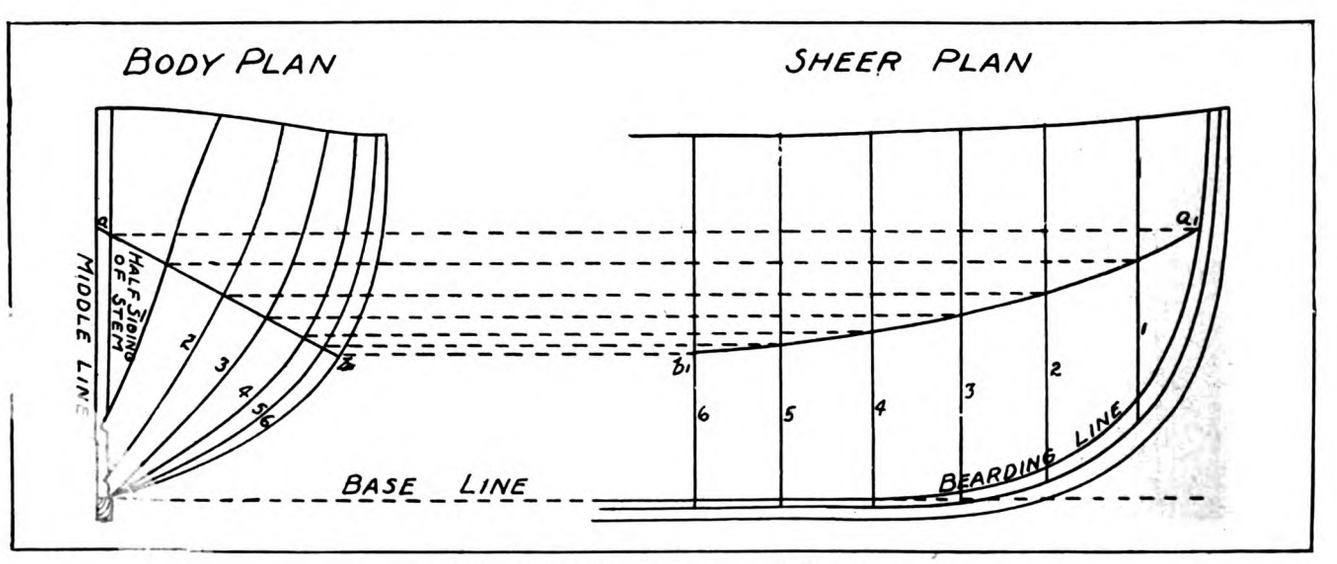


FIG. 9—BUTTOCK LINES AND BOW LINES

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

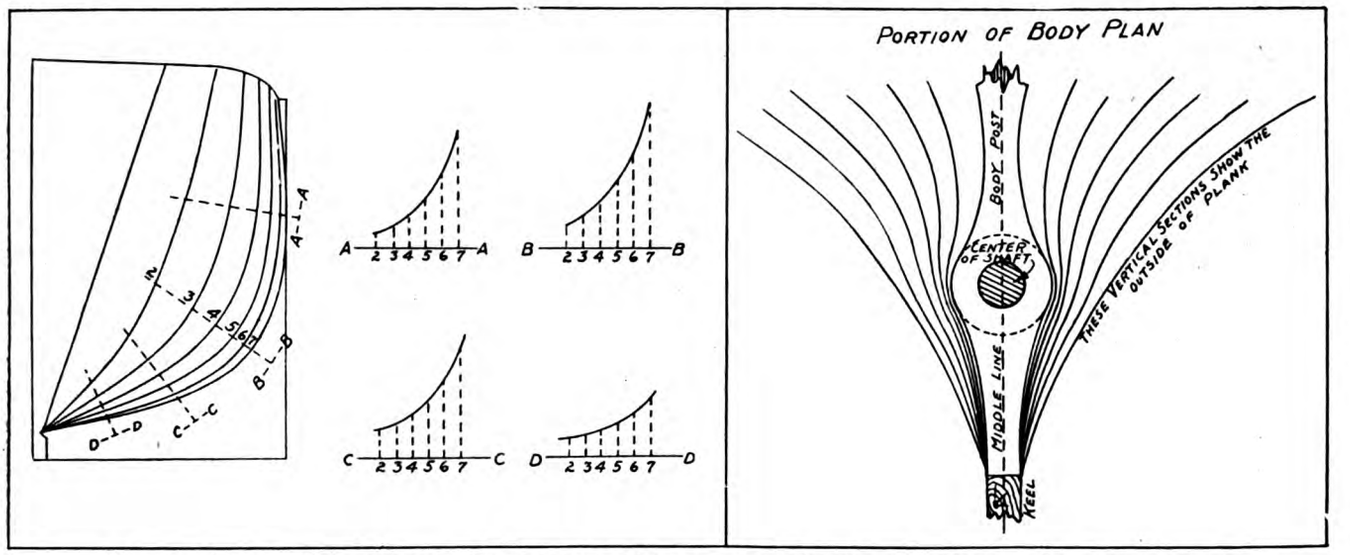

A-1-A
B-1-B
C-1-C
D-1-D
A 2 3 4 5 6 7 A
B 2 3 4 5 6 7 B
C 2 3 4 5 6 7 C
D 2 3 4 5 6 7 D
PORTION OF BODY PLAN
BODY POST
CENTER OF SHAFT
MIDDLE LINE
KEEL
THESE VERTICAL SECTIONS SHOW THE OUTSIDE OF PLANK

FIG. 10—CONTRACTED METHOD OF FAIRING. FIG. 11— ACCOUNTING FOR SWELL FOR SCREW SHAFT

planes of projection is parallel to the diagonal plane, in order to obtain the true form of intersection of the diagonal plane must be rabatted upon either the half-breadth or sheer planes. The former is that generally chosen, and, as before stated, the line so obtained is termed a diagonal line.

To Draw a Horizontal Ribband Line

Measure the distance, Fig. 8, square to the middle line of the body plan at which a diagonal line *ab* cuts each square station 1, 2, 3, etc., and set off these distances from the middle line of the half-breadth plan upon the corresponding square stations. A line a_1b, drawn through these points is the horizontal ribband line.

Measure the perpendicular distance from the base line of body, to where the diagonal *ab* cuts the half siding of stem, and set that distance up square to the base line of the sheer plan, to where it intersects the bearding line at e_1, from which point square a line e_1e_2 to the middle line of half-breadth, and measure from the base line upon the line e_2e_1, a distance e_2a_1 equal to half siding of stem *ef* at the height of the point *e*. The point a_1, thus found is the ending of the horizontal ribband line.

In fairing the bodies of wall-sided ships, the horizontal ribband lines frequently coincide, or are so near each other as to be indistinguishable. In such a case it is advisable to use the rabatted instead of the projected intersection of the diagonal plane, *i. e.*, to fair by diagonals. Indeed, in any case it is advantageous to draw these lines in fairing, as they must be laid off at some time or another in order that the molds may be made for the harpins.

In Fig. 8 measure along the direction of the diagonal line *ab* in the body plan, the distance from the middle line of that plan to where the diagonal cuts each square station, 1, 2, 3, etc., and set off these distances in the half-breadth plan upon the corresponding square stations, measuring from the middle line. A curve *AB* passed through these points is the diagonal required.

To end the diagonal line, measure the half siding of stem *ae* in the body plan along the direction of the diagonal line, and set up this distance on the perpendicular line e_2e_1 already drawn through the ending of the horizontal ribband line—a point *A* is thus determined at which the diagonal is to be ended.

Bow and Buttock Lines

We will now turn our attention to the bow and buttock lines. Since the sheer and half-breadth plans overlap each other on the floor, and have the base and middle line of these plans, respectively, coincident; as a matter of convenience, the level lines in the former plan may be used as bow and buttock lines for the latter. In the body plan, these lines will be drawn parallel to the middle line, and at the same distance from it as they are from the middle line of the half-breadth plan. The bow and buttock lines are drawn only as far from the extremities toward amidships, as curvature of a peculiar character may extend.

Where the bow line *ab*, Fig. 9, in the half-breadth plan intersects with each level line, square up to the corresponding level line in the sheer plan, and the points thus determined are in the bow line. Next, take the heights above the base line of the body plan, at which the bow line cuts each square station, and set up these heights in the sheer plan upon the corresponding square stations, measuring from the base line; the points thus obtained will also be in the bow line. Generally, a curve will not pass through all these points owing to the indeterminateness of the intersections at some parts, as well as to an unfairness of the surface. Hence, bow and buttock lines require more judgment and discretion in their treatment than either of the other lines by which the body is faired. When discrepancies occur, the level and diagonal lines in the neighborhood must be examined to see if the points of intersection were correctly taken, and if a modification of these lines, consistent with fairness, will give such points for the bow line as the batten will spring to. As we have already stated bow and buttock lines are of great service to both designer and draftsman in judging the character of the surface at the extremities of the ship. No rules can be laid down for guidance in dealing with them, experience being required in order that they may afford a vivid conception of the form of the vessel.

Plans Must Coincide

The body plan may be recopied, and the new square stations drawn in and ended as before. If these do not pass through all the points obtained for them, the half-breadth plan must again be checked by it, and so on, alternately, these operations must be repeated until the body and half-breadth plans exactly coincide, and both plans have fair or continuous lines in them.

In practically performing these operations, a great deal must be left to the judgment of the draftsman; a practiced eye will save much labor. When a batten does not spring well to the points, it is best to pass it outside some and inside others, and thus prevent great deviation from the design in either direction; observing that, as a rule, the batten should pass

Generated on 2024-07-26 17:09 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

on the outside more frequently than on the inside of the points, in order that the volume of the ship may not be less than that given by the design. In copying and drawing the body plan, it is advisable to draw the midship section first, and then the others in rotation, as the draftsman is thus better enabled to see what he is doing, and exercise his judgment.

Fairing the After Body

Should the preceding operations have been carefully carried out, the fore body will be fair, and work, which will be treated of subsequently can be proceeded with at once. Before entering upon this, we will, however, first consider the after body. All that has been said of the fore body is true of this; a slight variation is, however, made with reference to the bearding lines. Owing to the swell allowed to house the screw shaft, and the general fineness of the after body, which would cause the heels of the timbers to run off to a thin wedge, a somewhat irregular stepping line is cut in the stern post and deadwood for the endings of the timbers (See Fig. 4.) Greater care is required in getting in buttock than bow lines, as owing to the great curvature at the counter, which is in a direction perpendicular to the buttock planes, the intersections are more trustworthy than by any other plans, and, hence, they are almost the only criterion of the fairness at that part. It is well, in fairing the body, to scarf or overlap the lines in the half-breadth plan, that is, to fair a few feet of the midship portion of the ship in both bodies. Perhaps, however, the best way to ensure the ship being fair when the fore and after bodies are joined amidships, is to set off in the half-breadth plan lines parallel to the middle line of that plan, and distant from it the greatest breadths at the several level lines; and take care, when penning the battens to the respective lines, to prevent them from extending beyond the parallel lines.

The body being fair, we might now proceed to lay off the cants, etc., by it; but, before doing so, we will first show how to fair the body by what is known as the contracted method.

The extremities of a ship are the parts which require the most care in fairing, this being due, not only to the greater curvature at those parts, but also to the fact that most of the problems in laying off occur at the bow and stern.

As we shall see further on, the midship portion of the ship, although by far the largest, is yet that most easily disposed of by the draftsman, and owing to its being so straight, very little fairing is required for it.

Fairing by Contracted Method

To save time and labor, as well as for the advantage derived from being able to do in a small space that which would otherwise occupy a large part of the floor, the body is often faired by the contracted method shown in Fig. 10.

First determine by an examination of the body plan how much of it shall be faired by this method, observing that it is well to leave such portions of the two bodies as may have great curvature to be faired by the method already given. It must be observed that in the figure more than the usual portion of the body is shown as being faired by this method.

Work Must be Done Carefully

Draw upon the floor, perpendicular to any chosen base line, as many equidistant straight lines as there are sections to be faired, and number these perpendiculars to represent the square stations. These lines need not be spaced more than a sixth or a seventh of the spacing of the stations apart. Next, produce each level and diagonal line (diagonal line usually) in the body plan to any point chosen at a few feet beyond the midship section, the reason for this will be seen presently. Then measure along each level and diagonal line from the termination outside the body plan just fixed upon, to where it intersects with each of the square stations to be faired; set these distances upon the corresponding perpendicular lines just drawn, measuring, of course, from the base line; and draw lines, by a batten, through these points. Treat all the level and diagonal lines in a similar manner; and at the top sides use level lines drawn in the same places as when fairing that part of the ship by the ordinary method. Fair these lines in the same manner as if the spacing of the perpendiculars were the correct room and space. Alternate the processes by recopying the body from these curved lines, and vice versa, until the curves pass fairly through all the points obtained for them, after which this fictitious half-breadth plan may be rubbed out, the midship portion of the body being

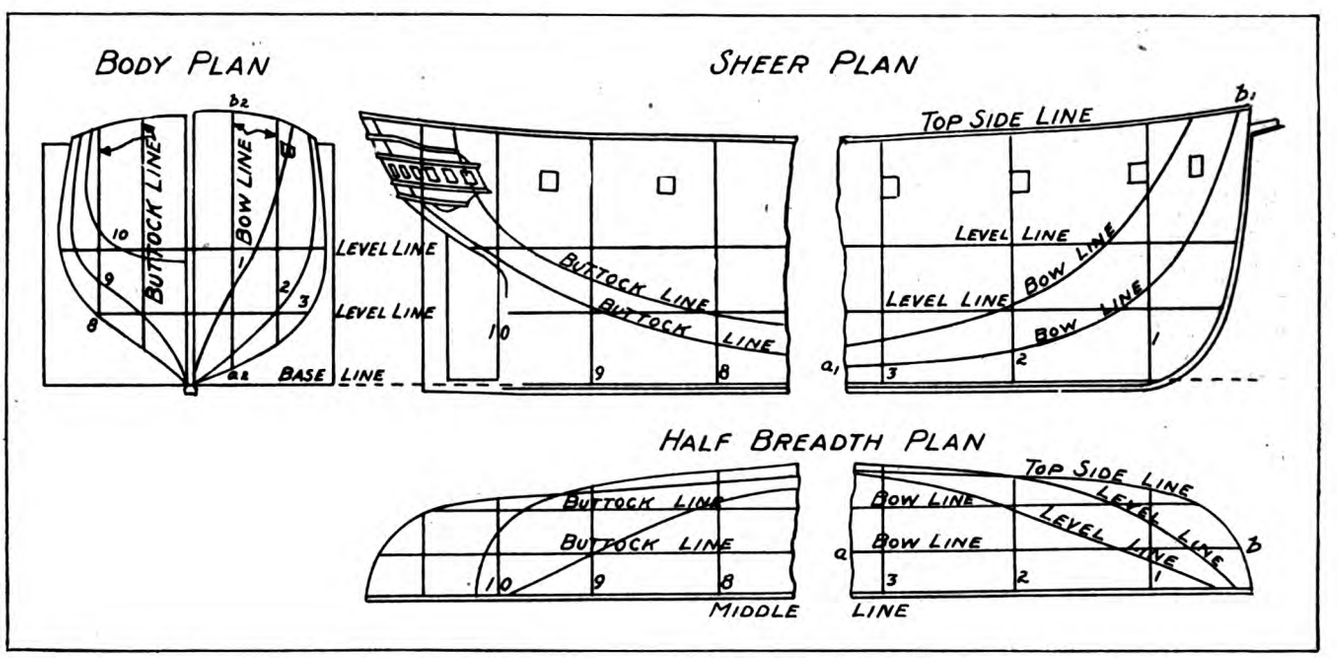


FIG. 12—DIAGRAM SHOWING METHOD OF DRAWING DIAGONALS IN SHEER PLAN

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

faired. Assume the two endmost of the stations so faired to be absolute and invariable; and in fairing the extremities of the ship by the ordinary method, let the batten pass through all the spots in these stations in the same manner as if it were the midship section, taking care, however, to let the batten pass through points obtained from the adjacent stations, so that there may be no discontinuity in the surface of the ship where the portion of the body faired by the contracted method joins to that faired by the ordinary method.

One of the chief advantages of the method of fairing which we have just been describing, consists in the facility with which the molds of the square body can be sent out, and the timbers converted before the fairing of the extremities of the ship is completed.

It may be remarked, that when the square stations are not equidistant, it will be necessary to space the perpendicular lines, by which the curves are set off, at distances from each other proportional to the spacing of the square stations. There is no necessity for using the level and diagonal lines already in the body, as any lines may be used for the purpose of fairing.

It will be readily seen that not only is the contracted method correct in principle, but owing to the ordinates of the curve being placed closer together, the curvature is increased, and, therefore, the battens are more likely to spring fairly than when the curves are nearly straight.

Projections of Diagonals on the Sheer Plan

We will now get in a set of lines, which, although seldom used for the purpose of fairing, yet serve to prove that fairness, when drawing upon paper. The lines referred to are the projections of the diagonal lines on the sheer plane. The chief use of these lines is to give the positions of the heads and heels of the timbers when disposed in the sheer plan, upon boards which are given to the workmen for their guidance in fairing the ship.

It has been already remarked, that diagonals are used as harpin lines; of these diagonals there are two sets, viz., heads or harpins, and filling heads or sirmarks. The former give the lines of the heads of frame timbers, and the latter of filling or doubling frames. An arrangement of diagonals in the body plan is shown by Fig. 5; those marked *FH*, 1*H*, 2*H*, etc., being the floor head, first head, second head, etc., harpins, respectively; while those marked *FS*, 1*st S*, 2*nd S*, etc., are the floor sirmark, first sirmark, second sirmark, etc., respectively. The same names are given to the corresponding diagonals in the half-breadth and sheer plans. At some yards a different nomenclature is adopted; the sirmarks *FS*, 1*st S*, 2*nd S*, etc., being known as *S.F.H.*, *F.F.H.*, *F.* 1*st H.*, etc., or short floor head, filling floor head, filling first head, etc., while the same names, as before stated, are given to the heads of the frame timbers. Further particulars regarding the disposition of the timbers composing the frames and filling frames, are given in the next chapter.

To Obtain Ending

The diagonals in the sheer plan are generally copied upon paper to a ¼-inch scale, being laid off from the sheer draft without reference to the floor. When the frames are disposed, the drawing is copied upon a board and given to the workmen for their guidance, as before stated.

Measure the height, Fig. 12, square from the base line of the body plan, at which a diagonal line *ab* cuts each square station, 1, 2, 3, etc., and set these distances upon the corresponding square stations in the sheer, measuring from the base line of that plan. A line a_1b_1, drawn through these points is the diagonal in the sheer plan. Diagonal lines are generally ended at the bearding line, and the ending is obtained by measuring the height above the base line of the body plan at which the diagonal cuts the half siding of stem or stern post and setting this height square from the base line in the sheer to cut the bearding line; the point on the bearding line, so obtained, is the ending of the diagonal.

Up to the present time we have been working with only every second, third, or perhaps fourth square station drawn in each plan. These were sufficient to fair the body by; and, indeed, were preferable to having the whole of these stations drawn, owing to the greater clearness resulting from fewer lines being drawn upon the floor.

The intermediate stations may now be supplied. As these stations appear straight in the sheer and half-breadth, they are first drawn in those plans by dividing the space between two consecutive square stations, as at present drawn, into the requisite number of equal parts, and drawing vertical lines through the points thus obtained. They are then easily transferred from these plans into the body plan by the methods already given. If the body is fair, the new square stations will pass through all the points set off for them.

Either at this stage of the work, or before putting in the intermediate square stations, it is necessary to draw the top side line, top-breadth line, and other lines which at all conform to the sheer of the ship. These lines will appear curved in all the plans. Measure with a scale from the sheer draft the height above the base line of the sheer plan at which the top side, top-breadth, or other such line, cuts each square station and set up these heights on the corresponding square station in the sheer, and pass a batten through as many of the points, so found, as is consistent with fairness. It will be found, that this line will not differ materially from a line copied upon the floor previous to the body being faired. When the line is copied into the sheer plan, it can be transferred to the body plan, by measuring the height above the base line at which it intersects each square station, and setting up these heights upon the corresponding square stations in the body plan, measuring square from the base line of that plan. A curve passed through the points so obtained, will be the projection in the body plan of the sheer line referred to. To transfer the line to the half-breadth plan, measure the distance square from the middle line of the body plan at which the sheer line cuts each square station, and set these distances upon the corresponding square stations in the half-breadth, measuring from the middle line of that plan. A curve passed through these points will be the horizontal projection of the sheer line. The sheer lines are ended at the bearding line similarly to the horizontal ribband lines.

Locating the Screw Shaft

When the after body of a screw ship has been faired, the height and direction of the center of screw shaft are drawn in the body and sheer plans. A circle is then swept in the former plan, the center of which is the center of shaft, and the radius is that of the shaft plus the scantling of timber which is allowed around it. It should be remarked that the scantling taken for the radius does not usually include the boxen wood allowed in lieu of the bottom planking. The after square stations are then bent, so that all which would otherwise intersect with this circle are made tangents to it. The bent portions are then faired by putting additional level lines in the vicinity of the swell, transferring them to the half-breadth plan, and recopying the stations as before described. After this is done, the lines of the outside of the plank are drawn parallel to these, and the molds to the stern post, etc., are made to the outer lines, thus allowing for the boxen. Fig. 11

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

shows the outer lines as described.

The square stations in the body plan have been ended as tangents to circles, each having a radius equal to the thickness of the bottom planks. If the center of a circle be joined to the point where the square station touches it, and the side of the keel be drawn, we shall have the shape of the rabbet of keel at the section in question, on the supposition that the garboard strakes are the same thickness as the bottom plank. Sometimes thick garboards or Lang's safety keels are fitted. The floors are scored down 1½ inches into the keel, ¾ inch being taken out of each; and the under side of the floor is snaped away in a straight line to a point termed the angle of floor. This point is given in the midship section; and, in order that the edge of the outer piece of garboard may be a fair curve and parallel to the general run of the bottom planking at that part, the draftsman measures with his compasses the distance between the center of rabbet and the angle of floor in the midship section; and with the former point as a center, sweeps a circular arc in the body plan to cut the square stations at points, each of which will be the angle of floor for that section. The shape of the floor for each section is then obtained, by joining a point 1½ inches below the upper part of keel with the angle of floor at that section. It will be observed that, as the stations get more perpendicular forward and aft, the lines of the underside of floors, as thus drawn merge into the curves of the frames until the angle disappears. Sometimes only the square body frames have been treated in this way; the timbers of what is termed the cant body, being made to heel against the beading line. Hence, below the angle of floor, these timbers have projected beyond those of the square body. Of course, this has only been the case when the cant body has commenced nearer amidships, than where the angle of floor has merged into the curvature of the frames. A fair surface has been given to the ship's bottom in such a case, either by scoring the garboard plank over this projection, or by putting the garboards in two thicknesses, the inner of which has flushed the surface before the outer was put on.

The cutting down line is the line of the upper side of the floors at the middle line in the square body, and of the upper side of the heels of the timbers in the cant body. It should now be drawn.

The position of this line is governed by the shape of the body and the molding of the timbers. It is usually obtained by setting in square to the surface at each square station in the body plan, the molding of the timber at its ending, to where that distance cuts the half siding of either stem deadwood or stern post, according to the situation of the ending. Such a point will be the height of cutting down at that square station, that is, the minimum height to which the deadwood need come in order to completely house the heel of the timber in the cant body; it is also the top of the floors, at middle line, in the square body. Points such as these are obtained for each square station in the body plan, then these heights are transferred to the corresponding stations in the sheer plan; and a line drawn through the points so obtained gives the cutting down line.

We have just stated that the moldings of the timbers are set in square to the surface of the ship. Now, at amidships, it will be sufficient if we merely set the molding of the timber in a direction square to the curve of the station; but at the extremities, especially in a bluff ship, it is evident that the distance thus set in would be considerably less than the actual thickness of the timber; we have, therefore, to obtain the accurate molding of the timber in the plane of the square station, before we can draw in a correct cutting down line at the extremities. Such moldings are difficult to obtain perfectly accurate.

The Cutting Down Line

Just as the bearding line is the line of the endings of the outer sides of the timbers, so the cutting down line is that of their inner sides. They are, in fact, respectively, the traces of the planes of the side of stem, stern post, and deadwood with the outer and inner surfaces of the frame timbers. In proportion, then, as the ship is full or sharp at her extremities, so will these lines be near to each other or far apart. Now, as a sufficient molded width of stem, apron, stern post, deadwood, etc., is required to provide heeling and security to the cant frames, it is evident that the cutting down line will regulate the dimensions of the fore and after ends of the backbone of the ship. The deadwood usually projects about one inch beyond the cutting down line, but in some instances, when the ships have been very sharp, it has been found necessary to reduce the molded width of the deadwood in order to save weight, by allowing the cutting down line to run along the keelson, and thus partially heeling the cants against the latter; this, however, should be avoided when possible, as the keelson is considerably weakened by receiving the bolts from the heels of the timbers.

Even before we have arrived at this stage of the work, the drawing on the floor is sufficiently advanced for molds to be made for the frames of the square body, and other information to be supplied from it, by means of which the workmen can begin to prepare many of the timbers of the ship.

Soo Canal Report

Although the April, 1918, freight movement through the St. Mary's Falls canal was greater by 164,199 net tons than the movement in 1917, it fell far short of the shipments of 1915 and 1916. During April of this year, 422,489 net tons of freight passed through the canal, as compared with 258,290 net tons in 1917. The comparative figures for the past six years are as follows:

	Net tons
April, 1918	422,489
April, 1917	258,290
April, 1916	2,215,362
April, 1915	1,434,735
April, 1914	774,520
April, 1913	1,905,555

Of the 1918 shipments, 356,693 net tons passed through the American canal and 65,796 through the Canadian. Whereas no grain was sent east through the canal on either side last year, 4,441,647 bushels of wheat and 2,083,029 bushels of other grains passed through this year. This is still a small total when compared with the movement of 20,861,917 bushels of wheat and of 3,575,624 bushels of other grains in 1916.

The detailed figures for 1917 and 1918 are shown in the following table:

	To May 1, 1917	To May 1, 1918
EAST BOUND		
Lumber, M. ft. B. M.	.....	200
Flour, barrels	.....	.....
Wheat, bushels	.....	4,441,647
Grain, bushels	.....	2,083,029
Copper, net tons	.....	.....
Iron ore, net tons	.....	147,188
Pig iron, net tons	.....	.....
General merchandise, net tons	4	7
Passengers, number	.....	.....
WEST BOUND		
Coal, soft, net tons	160,318	88,078
Coal, hard, net tons	90,292	.....
Iron ore, net tons	.....	.....
Mictd. iron and steel, net tons	.....	.....
Salt, net tons	6,000	.....
Oil, net tons	.....	.....
Stone, net tons	.....	9,200
General merchandise, net tons	6,776	3,915
Passengers, number	.....	.....
SUMMARY		
Vessel passages, number.	166	187
Registered tonnage, net..	549,137	401,465
Freight:		
Eastbound, net tons	4	321,296
Westbound, net tons	258,286	101,193
Total freight, net tons.	258,290	422,489

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Ore on Dock May 1

Statistics gathered by THE MARINE REVIEW from various dock managers at Lake Erie ports show that the amount of ore on Lake Erie docks, May 1, was 5,622,019 gross tons, compared with a balance of 4,772,232 gross tons on May 1, 1917, an increase of 849,787 gross tons. Corresponding figures for 1916 and 1915 were 3,343,405 and 6,092,303 gross tons.

The total rail shipments from Lake Erie ports to furnaces during the winter season from Dec. 1, 1917, to May 1, 1918, were 4,704,330 gross tons, as shown in the following table:

	Tons
On dock Lake Erie ports, Dec. 1, 1917	10,326,349
On dock May 1, 1918	5,622,019
By rail to furnaces, winter of 1917-18	4,704,330

The amount of ore shipped to furnaces during the 1917 navigation season was 43,258,742 gross tons which, added to the winter shipments, gives a total of 47,963,072 gross tons of ore forwarded to furnaces over these docks in the year ended May 1, 1918. This total compares with 50,378,445 tons in the corresponding period ended May 1, 1917; 40,716,358 tons in the year ended May 1, 1916, and 25,230,489 tons in the year ended May 1, 1915.

The following table shows the ore on docks at the close of the 1917 navigation season and at the opening of the 1918 season, April receipts being included in the May 1 balance:

Port	Gross tons May 1, 1918	Dec. 1, 1917
Buffalo	313,925	441,318
Erie	363,008	519,698
Conneaut	844,447	1,544,706
Ashtabula	1,744,448	3,435,624
Fairport	329,528	536,580
Cleveland	933,687	1,914,071
Lorain	475,137	978,108
Huron	387,042	556,765
Toledo	230,797	399,479
Totals	5,622,019	10,326,349

Schwab's Formula for His Success

(*Concluded from page 247*)

Thomas L. Chadbourne, counsellor to the war trade board, in the course of his address mentioned the name of Mr. Schwab, and the instantaneous roar of applause that swept the great audience was significant of the feeling held by American business leaders. When the applause was stilled, Mr. Chadbourne paid a high eulogy to Mr. Schwab but cautioned his auditors not to forget when the shipbuilding program was carried out to a successful completion that a large share of the credit should go to Chairman Edward N. Hurley, of the shipping board.

* * *

In dealing with Mr. Hurley, however, Director General Schwab puts emphasis on enthusiasm rather than rivalry. Both of these big leaders on the shipbuilding program have been happy in their choice of comments on the work the other man has done or would do. Mr. Hurley paraphrases the comment of President Lincoln concerning General Grant by stating his willingness to hold Mr. Schwab's horse if the new director general can build the ships. Mr. Schwab retaliates by attracting attention to the prodigious work done by his predecessors and associates.

* * *

A short time ago a member of a group which inspected a large steel plant in company with Mr. Schwab, told of his amazement at the type of inspection Mr. Schwab made. The works had been tuned up for the visit. Owing to the huge size of the plant, the inspection tour was expected to be a matter of some hours. Mr. Schwab at the head of the party walked through building after building at a pace which soon forced most of the other members to fall far behind. Mr. Schwab apparently was concerned most with finding the direct line between the entrance and exit to each building. "His comments, however," said this member of his party, "after the trip showed that he had gained a closer insight into almost every detail of the work than had those members of his party who took the most time and observed the most closely."

* * *

This ability to see under the surface while making inspection trips will be one which Mr. Schwab can call into play in putting over his job. His work will be to speed-up production by improving shipyard practice. He began by transferring his headquarters from Washington to Philadelphia in order to be nearer the center of the largest shipbuilding district. As a practical shipbuilder his frequent inspection trips will enable him to outline to the managers steps necessary to promote production. As a successful employer for years of large numbers of workmen, these same inspection trips will enable him to suggest and carry out those measures which under actual test in his own shops he has found necessary in increasing contentment among his employes. Finally, he will have the opportunity of inspiring the workmen to produce and to produce rapidly in the way he has done at the Bethlehem steel works and in his own yards.

Naval Architects' Meeting

The twenty-sixth general meeting of the Society of Naval Architects and Marine Engineers will be held on Thursday and Friday, Nov. 14 and 15, 1918, at the Engineering Societies' building, 29 West Thirty-ninth street, New York City. The annual banquet will be held in the grand ball room of the Waldorf-Astoria hotel, Friday evening, Nov. 15. Daniel H. Cox, secretary-treasurer, has stated that members are requested to communicate with him in regard to papers which they wish to submit for consideration at this meeting. Members also are requested to suggest subjects for papers.

1918 Great Lakes Red Book Completed

The 1918 edition of THE GREAT LAKES RED BOOK, which has just been printed, reveals clearly the drain made on lake vessel tonnage by the shortage of bottoms on salt water. The number of vessels listed shows a decrease owing to the shifting of a large number of smaller ships to the Atlantic. The decrease in the number of boats has not reduced materially the carrying capacity of the bulk freighter fleet, as the ships taken over by the government were small carriers. The number of fleets now operating lake boats is 287 against 288 at the opening of 1917, 308 at the opening of 1916 and 360 at the opening of 1915. The data for the new edition have just been compiled by THE MARINE REVIEW and the book is now ready for distribution.

THE GREAT LAKES RED BOOK contains a practically complete list of more than 1000 lake vessels, together with the names of the owners, captains and engineers of each boat. The detailed information regarding any vessel is readily found, as the system of indexing is designed for quick reference. In addition, the book shows the individual capacities of all ore carriers on the Great Lakes.

April Ore Shipments

April ore shipments from upper lake ports were 235,870 tons, compared with 211,532 tons in April, 1917, an increase of 24,338 tons. April, 1916, shipments were 1,658,411 tons. Detailed shipments follow:

Port	April, 1918	April, 1917
Escanaba	.....	190,407
Marquette	10,708	.....
Ashland	.....	.....
Superior	99,562	21,125
Duluth	56,991	.....
Two Harbors	68,609	.....
Total	235,870	211,532
1918 increase	24,338	.....

Among the vessels under construction at Dennysville, Me., is a 4-mast schooner at the yards of Pushee Bros.

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Marine News in a Personal Way

Intimate Gossip About What Leaders in the Maritime World Are Doing

WILLIAM G. CLYDE who is now vice president and general manager of sales of the Carnegie Steel Co., Pittsburgh, succeeding Col. Henry P. Bope, resigned, was born in Chester, Pa., and was educated at the Pennsylvania Military college. Following his graduation he became affiliated as civil engineer with Ryan & McDonald, Baltimore, contractors, with whom he remained seven months, but resigned to become associated with Robert Wetherill & Co., Chester, Pa., machinists and founders. His next position was that of ingot tracer for the Wellman Steel & Iron Co., Thurlow, Pa. He then became a roller in that company's 132-inch plate mill and soon was promoted to the plate mill superintendency. After serving for two and a half years with the Wellman company, Mr. Clyde became superintendent of plate mills in the South works of the Illinois Steel Co., South Chicago, Ill., where he remained for six years, after which he became district sales manager of the American Steel Hoop Co., establishing a branch office in Philadelphia. He kept this position until the company was merged with the Carnegie Steel Co., and following a sales service of three years in the Cleveland office of the Carnegie company he was transferred to Pittsburgh to become assistant to Colonel Bope as assistant general manager of sales in charge of the bar, hoop and band division, a position he held for 13 years.

* * *

JAMES M. SMITH is in charge of the shipbuilding plant of the Canadian Car & Foundry Co., Fort William, Ont. This plant has a contract to turn out 12 trawlers for the French government before the end of the 1918 season.

* * *

WILSON B. KEENE has been added to the list of Maritime Exchange members who are in the service of the government. Mr. Keene is in Washington at the office of the shipping board as special expert to facilitate the shipment and movement of lumber to the several shipyards on the Atlantic coast that are building vessels for the government.

* * *

D. M. CALLIS formerly with the Maryland Steel Co., Sparrows Point, Md., and later with the Seattle Dry Dock & Construction Co., Seattle, has recently been promoted to the position of assistant northwest district officer under Capt. John F. Blain.

* * *

CAPT. W. M. TUPPER, superintendent of the Clyde Steamship Co., at Jacksonville, Fla., has been appointed assistant general manager of both the Clyde and Mallory lines. Captain Tupper recently left for New York to take up his new duties.

* * *

WILLIAM NEWMAN, naval architect and works manager of the Polson Iron

WILLIAM G. CLYDE

Works, Toronto, Ont., has severed his connection with the latter and has been offered a position with the Emergency Fleet corporation at Hog island.

* * *

P. J. DONOHOE, naval architect, has been made superintendent of the new shipyard to be established at Ruskin, B. C., on the Fraser river by the Standard Shipbuilding Co., Dominion building, Vancouver, B. C. Contracts have been closed with the imperial shipping board for 10 composite steamers of 3500 tons deadweight capacity which will have reinforced steel keels and steel knees.

* * *

EADS JOHNSON, formerly representative of the Emergency Fleet corporation at New York, is the vice president of the Carolina Shipbuilding Corp., Wilmington, N. C. The corporation is to build 12 ships of 9600 tons each for the government.

* * *

ALBERT TATE SMITH, lately manager of the R. U. V. Co., New York, has become assistant manager of sales of the Permutit Co., with which he was formerly connected. Mr. Smith is widely known in the water purification field.

* * *

L. P. SUTTER has been appointed district sales manager in the Pittsburgh office of the Mark Mfg. Co. Mr. Sutter who has had charge of the Indiana, Ohio and Michigan territory of the company with offices in Toledo, O., succeeds B. T. Bechtel who has been made assistant general manager of sales with offices at the company's headquarters in Chicago.

* * *

DANIEL BLOOMFIELD was recently made head of the industrial service department, division of general service of the Emergency Fleet corporation, Philadelphia.

* * *

GEORGE A. ARMS was recently elected president of the Moore Shipbuilding Co., San Francisco and Oakland, Cal., following his resignation as engineer in charge of construction work in the San Francisco district for the United States shipping board.

* * *

LINDSAY H. WALLACE, Cleveland, has been appointed district officer for the Emergency Fleet corporation for the fifth district with headquarters at New Orleans. Mr. Wallace succeeds K. A. Veit who has been assigned to the home office of the corporation in Philadelphia.

* * *

A. C. SHERRARD has been appointed general eastern agent of the Baldwin Shipping Co., Mr. Sherrard's office is at 510 Old South building, Boston .

* * *

M. J. SANDERS, New Orleans, manager of the Leyland Steamship lines, has been designated as a member of the inland waterways committee. The committee was appointed to advise W. G. McAdoo, director general of railroads, regarding the greater use of inland waterways for moving freight.

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

American Ship Yard Activities

A Snappy Summary of the Leading Events of the Month in the Vessel Construction Field

Pacific Shipyards Establish Records

NORTH Pacific yards continue to make speed records in turning out ships and today there is rivalry among the various plants. The competition is particularly keen between Puget sound and the Columbia river.

The 8000-ton steel steamship WEST GROVE, built by the Columbia River Shipbuilding Co., whose launching in March in 61 working days established a Pacific coast record, was completed in 85 days, hanging up another record. However, since then the Skinner & Eddy Corp., Seattle, shattered the Columbia river launching record by placing in the water on April 20 the 8800-ton steel steamship WEST LIANGA only 55 working days from the time the keel was launched. She is expected to be completed in 65 working days.

The Seattle company during April turned over the steamship OSSINEKE to the government in 88 working days, which remained a world's record for a few days. This company has already delivered to the Emergency Fleet corporation four direct-contract ships, the SEATTLE, ABSAROKA, CANOGA and OSSINEKE, while two others, the WESTDURFEE and WEST LIANGA, have been launched and will be delivered within a few days. D. E. Skinner, president of this plant, expects to win his two-to-one wager that his company will deliver to the government five direct contract ships before another plant commissions one.

Two records for fast work in launching wooden ships have just been made by the Grant Smith-Porter Shipbuilding Co., Portland. The first was the wooden steamer WAKAN, launched April 20, 51 days after the laying of the keel. Four days later a new world's record was established with the launching of the wooden steamer CAPONKA by the same plant in 49 working days.

During April the eighth shipping board district, including Puget sound and Portland delivered seven steel steamships to the government, five of them built in Seattle. These vessels are:

WESTOVER AND WESTBORO, 8800 tons each, by J. F. Duthie & Co.

OSSINEKE AND WESTERN QUEEN, each of 8800 tons, by Skinner & Eddy Corp.

BREMERTON, 7500 tons, by Seattle Construction & Dry Dock Co.

WEST GATE, 8800 tons, by Northwestern Steel Co., Portland, Oreg.

WEST GROVE, 8800 tons, by Columbia River Shipbuilding Co., Portland, Oreg.

The launchings in the North Pacific during April include the following:

PEROMME, 2500-ton wooden auxiliary schooner, by Washington Shipbuilding Corp., Seattle, April 9.

WESTDURFEE, 8800-ton steel steamer, by Skinner & Eddy Corp., Seattle, April 11.

WEST LIANGA, 8800-ton steel steamer, by Skinner & Eddy Corp., Seattle, April 20.

WEST BRIDGE, 8800-ton steel steamer, by J. F. Duthie & Co., Seattle, April 24.

ALABAMA, 4000-ton wooden motor schooner, by Alaska Pacific Navigation Co., Seattle, April 24.

OAKWOOD, 2500-ton wooden steamer, by Pacific American Fisheries Co., Bellingham, Wash., April 25.

MOJAVE, 3000-ton wooden steamer, by Seaborn yards, Tacoma, Wash., April 20.

WESTMOUNT, 8800-ton steel steamer, by Ames Shipbuilding & Dry Dock Co., Seattle, April 16.

BELLATA, 4200-ton wooden steamer, by Paterson McDonald Shipbuilding Corp., Seattle, April 17.

ANOKA, 4000-ton wooden steamer, by Peninsula Shipbuilding Co., Portland, Oreg., Apr. 20.

WAKAN, 3500-ton wooden steamer, by Grant, Smith, Porter Shipbuilding Co., Portland, Oreg., April 20.

CAPONKA, 3500-ton wooden steamer, by Grant, Smith, Porter Shipbuilding Co., Portland, Oreg., April 24.

WESTERN CHIEF, 8800-ton steel steamer, by Northwest Steel Co., Portland, Oreg., Apr. 20.

WAR HAIDA, wooden steamer, by Cameron-Genoa Shipbuilding Co., Ltd., Victoria, B. C., April 25.

WAR COMOX, 2500-ton wood steamer, by Polar Island shipyards, Ltd., New Westminister, B. C., April 11.

WAR CARIBOO, 2500-ton wooden steamer, by Lyall Shipyards, Vancouver, B. C., April 10.

ASTORIA, 3200-ton wooden steamer by McEachren Shipyards, Astoria, Oreg., for Emergency Fleet Corporation, April 24.

Navy Orders Concrete Fuel Barges

The Ambursen Construction Co. New York, has just received a contract from the bureau of construction and repair of the navy department for building four reinforced concrete fuel oil and coal barges for New York harbor service. These are the first concrete boats ordered by the navy department which has been conducting a series of tests to determine the adaptability of reinforced concrete in ship construction.

These barges are designed to carry a maximum of approximately 800 tons of fuel oil in the hold. Oil pumps will be installed for handling the cargo. The boats also can carry an equal tonnage of coal or other cargo. One of the problems met with in designing these boats was the oil-proofing of the concrete. This was successfully met. The method of construction, it is thought, will be suitable for oil tankers in gulf and coastwise service.

The Ambursen company has started constructon of these ships at its yard on the Hackensack river. The first boat is to be launched 50 days after the signing of the contract, the others following at 10-day intervals. The navy department plans to build 12 of these ships.

To Build Concrete Ships

A contract for the building of concrete ships at three shipyards along the Atlantic coast—one to be established eventually near Boston, one now under construction at Wilmington, N. C., and one already in operation at Brunswick, Ga.—that will involve $20,000,000 within a year, according to present estimates, was drawn up recently at Washington, between the United States shipping board and the Liberty Shipbuilding Corp., Boston.

The principal officers of the company are Boston men. The general manager is Lewis R. Ferguson, formerly with the United States shipping board and for nearly 15 years secretary of the Cement Dealers' association of the United States. The officers of the company are: William J. McDonald, president; Matthew Hale, vice president; Max Shoolman, treasurer.

Under the contract the government

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

will own the properties, but the ships will be constructed by the company and bought by the government. The main plant of the company will be at Wilmington, N. C. At this plant 10 ways will be built and it is estimated that the first concrete ship will be turned out within three months. After that, it is hoped to launch one ship a week, or an average of 50 a year. The ships will be completely fitted out at the Wilmington plant. The ships will range in size from 3500 to 7500 tons deadweight capacity and will be launched from channel ways, sideways launchings as practiced on the Great Lakes for many years being provided for.

Latest News from American Shipyards

WORKING on immense contracts for the Emergency Fleet corporation, the Pacific Construction & Engineering Co., Seattle, is increasing its equipment to the point where it can turn out from 16 to 18 ship shafts a day. The company also has orders from the Emergency Fleet corporation for rudder stocks, rudder posts, rudder arms, stern frames and engine forgings for 130 government vessels. Similar orders are held for the imperial munitions board of Canada. At present the plant is using from 800 to 1000 tons of steel a month in forging ingots.

* * *

Full control of the steel shipbuilding plant of J. F. Duthie & Co., Seattle, has just been taken over by J. F. Duthie, who has been vice president and general manager. Mr. Duthie purchased the interest of C. D. Bowles, formerly president. It is understood that the consideration was about $500,000. The plant has launched seven 8800-ton steel vessels since Sept. 1, 1917, and has delivered six of them to the government. The Duthie yard started with 12 contracts for ships of the 8800-ton type, eight for the Cunard interests and four for Norwegian owners. Announcement has just been made that this plant has been awarded a contract for 10 additional 8800-ton steel vessels for the United States shipping board, involving an expenditure of about $17,000,000. Mr. Duthie is a native of Scotland, obtaining his training on the Clyde. He came to this country in 1888 and in 1911 established a small shipbuilding plant in Seattle, which today has developed into one of the largest and most efficient on the North Pacific.

* * *

So that vessels being built by the Portland Ship Ceiling Co., Portland, Me., for the Emergency Fleet corporation may be launched safely, extensive dredging operations are under way. The dredge FREEPORT will dig behind the three launching ways now occupied; it being the intention to excavate a large basin with ample depth of water and also a deep channel from the basin to the sea. It is said that nearly 3,000,000 cubic yards of mud will have to be removed in order to obtain the required depth of water.

* * *

There are rumors of labor troubles in the British Columbia shipyards over the award of the Murphy commission which allows employes of wooden shipyards a 10 per cent increase for working 48 hours per week. The men are now working 44 hours and they are not inclined to put in the additional time. The commission adopted its findings in line with the Macy award which is based on 48 hours per week.

* * *

Story & Wardwells shipyard, East Boston, Mass., which was established over 40 years ago, and has since that time been engaged in ship repair work, has been purchased by Capt. O. A. Gilbert of the Boston Ship Brokerage Co. together with the equipment, tools and material on hand. The new owner intends to use the yard for repairing vessels of his own company and for other work. Later, the construction of vessels may be taken up.

* * *

With the launching of the 4200-ton wooden steamer BELLATA recently the Patterson-MacDonald Shipbuilding Co., Seattle, entered the ranks of the producing yards. This company sent its second wooden ship into the water early in May. This plant was established last summer and it is working on 10 contracts for 4200-ton wooden steamships for the Australian government.

* * *

A new plant for the building of wooden ships is to be erected and equipped at Quincy, Mass., on the Neponset river by the American Shipbuilding Corp.

* * *

The Crosby Navigation Co., Richmond, Me., is building a 4-mast schooner which will be launched in June. Another will be completed by early fall.

* * *

A new record for merchant shipbuilding was announced recently in the contest between yards for first place in turning our such vessels. The Skinner & Eddy Corp., Seattle, has delivered to the shipping board the 8800-ton freighter OSSINEKE in 109 calendar days, including Sundays and holidays, from the time the keel was laid, 81 days ahead of the date set in the contract.

* * *

The ship JOAN OF ARC of 2500 tons capacity was launched recently at Eureka, Cal., at the shipyards owned by James Rolph, mayor of San Francisco. The vessel was built for the Emergency Fleet corporation.

* * *

At Tacoma, Wash., the wooden steamship MOJAVE was launched from the Seaborn yards at 1 o'clock in the morning. This is said to be the first moonlight launching ever held in Tacoma. Because of the tides the midnight hour was chosen for the first dip of the new wooden vessel.

* * *

About 500 houses in West Philadelphia have been taken over by the Emergency Fleet corporation to house workmen who are employed at the Hog Island yards. The occupants are given 30 days in which to vacate. Some of them knew nothing of the government's action until they found placards on their doors reading: "This property commandeered by the Emergency Fleet corporation—No trespassing."

* * *

Steilacoom, Wash., is to have a concrete shipbuilding plant which has been organized and financed by the Hewett family, Tacoma. The site is a tract of 32 acres at the mouth of Chambers creek near the main line of the Northern Pacific, the Great Northern and the Oregon-Washington railroads. A spur track will be built from the railroads to a hill on the landward side of the site. The hill has an elevation of 200 feet and advantage of this will be taken to operate the plant with gravity power in distributing materials. The company plans to launch a complete concrete hull 90 days after the plant is in operation.

* * *

Fire recently broke out in the hull of the commandeered 8800-ton steel steamship WESTBORO building at the Harbor island plant of J. F. Duthie & Co., Seattle. Spontaneous combustion in oil-soaked rags is believed to have caused the fire which made considerable smoke but caused little damage.

* * *

The Union Construction Co., San Francisco, intends to construct a large shipyard covering 63 acres on the east side of San Francisco bay. The company has recently been awarded contracts by the Emergency Fleet corporation. These call for the construction of 10 steel ships of 9400 tons each to be delivered within the next 22 months. Approximately 3000 men will be employed at the plant.

* * *

The Ames Shipbuilding & Drydock Co., Seattle, recently launched an 8800-ton steel steamship for the government. The vessel was christened the WESTMOUNT and is the fourth vessel to be launched by the company since the beginning of last winter, and the third to be launched this year.

* * *

Seattle is to have another shipyard, the new Pedersen Shipbuilding Co. The company is to locate on the Duwamish waterway and the plant will be modern in every respect. The company has a contract to build eight wooden steamships of 3500 tons each for the French government. The French contract has been signed, subject to the approval of the United States shipping board. The company was organized by Hans Pedersen, an old-time Seattle contractor and engineer.

Generated on 2024-07-26 17:10 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

RECORD OF NEW SHIPS DELIVERED TO SHIPPING BOARD UP TO APRIL 26, 1918

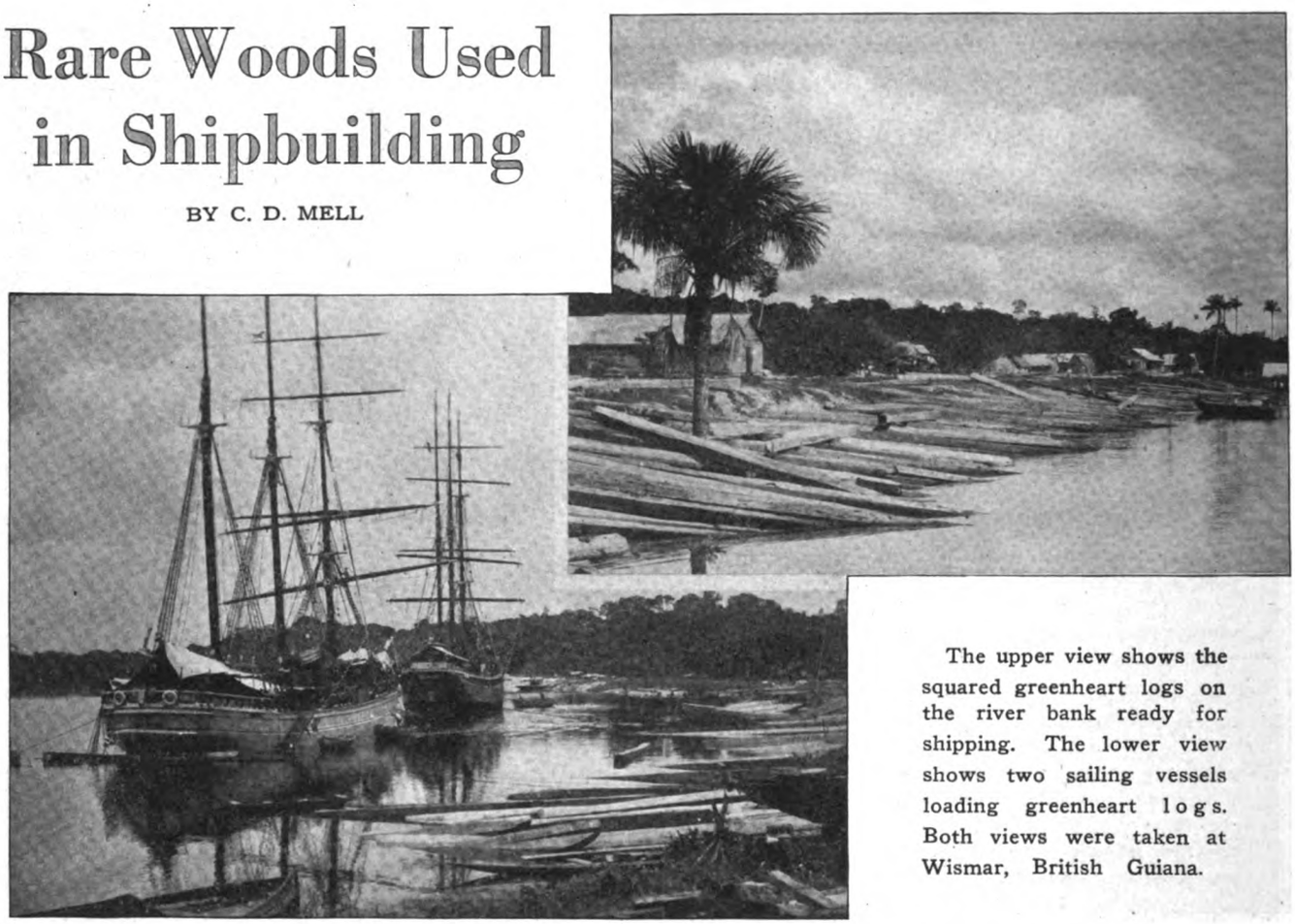
Company	Location of Works	Hull No.	Dead W'ght Tons	Date Keel Laid	Launching Date	Date Accepted
American Shipbuilding Company	Cleveland, Ohio	War Ferrett 215	3,100	9-25-17	12-29-17	2-14-18
		War Hound 84	3,100		10- 6-17	11-19-17
		Louis W. Hill 721	12,500		7-14-17 Est.	9-12-17
		Carmi A. Thompson 722	12,500		8- 4-17 Est.	9-12-17
		Choctaw 81	3,300		7- 7-17	8-31-17
		War Chant 528	3,100		7-31-17	9-21-17
		War Song 209	4,100		7-15-17	9-22-17
		War Path 210	4,100		8-11-17	9-27-17
		War Penguin 467	3,100		8-30-17	10- 8-17
		War Banner 83	3,100		9-15-17	10-31-17
		War Beaver 211	3,100		9-22-17	11- 1-17
		War Signal 529	3,100		9-22-17	11- 2-17
		War Honor 212	3,100		10-10-17	11-14-17
		War Finch 468	3,100		9-22-17	11-17-17
		War Fox 213	3,100		11- 0-17	11-23-17
		War Raven 469	3,100	9- 6-17	11-24-17	1-31-18
		War Martin 214	3,100		11-24-17	2-14-18
		War Oak 470	3,100	9-26-17	12-15-17	2-25-18
		War Hope 216	3,100	10-13-17	1-19-18	2-27-18
		War Duty 85	3,100	9-22-17	1-31-18	4-19-18
		War Birch 726	3,100	9-18-17	1-14-18	4-23-18
		War Wren 725	3,100	9-15-17	12-20-17	4-22-18
Ames Shipbuilding and Dry Dock Co.	Seattle, Wash.	Westwood 2	8,800	3-20-17	1-12-18	3-12-18
		West Eagle 3	8,800	4- 1-17	1-31-18	3-29-18
		Westerly 1	8,800	3 -1-17	11-24-17	2-16-18
Albina Engine & Machine Works, Inc.	Portland, Ore.	Point Arena 2	3,300	4-25-17	11-29-17	3-30-18
		Point Loma 1	3,300	4-18-17	11- 3-17	3- 7-18
Bethlehem Shipbuilding Corporation, Ltd.	Sparrows Point, Md.	Cubore 160	11,300	10- 9-16	7- 9-17	8-20-17
		Feltore 161	11,300		9-27-17	10-29-17
		Bethore 162	17,060	3-26-18	8- 1-18	10-29-17
		Santore 165	11,300	3- 1-17	1- 1-18	10-29-17
Baltimore Dry Dock and Shipbuilding Co.	Baltimore, Md.	Wm. Isom 78	5,000	3- 3-17	6- 9-17	11-12-17
		Elinor 81	6,200	5-29-17	10- 0-17	3-20-18
Chester Shipbuilding Co.	Chester, Pa.	Hisko 350	9,000		10-15-17	12- 6-17
		Sudbury 340	7,500	5-25-16	9-29-17	3- 5-18
		Overbrook 341	9,000	7- 5-16	11-17-17	4-26-18
Cramp, Wm., & Sons, Shipbuilding Co.	Philadelphia, Pa.	Siboney 434	4,500	11- 9-16	8-15-17	4- 8-18
		Santa Anna 442	4,986		10-13-17	1-18-18
Columbia River Shipbuilding Corporation	Portland, Ore.	Westward Ho 1	8,800	3-26-17	11-20-17	3- 4-18
		Westbrook 2	8,800	4-26-17	1-13-18	3-30-18
		Westgate 3	8,800	5-26-17	1-27-18	4-23-18
		War Bullett 5	8,800	1- 5-18	3-27-18	4-27-18
Duthie, J. F. & Co.	Seattle, Wash.	Westpoint 8	8,800	11-29-16	11-15-17	1-21-18
		Westerner 9	8,800	12-10-16	11- 6-17	2- 4-18
		Westfield 10	8,800	3- 1-17	12- 8-17	2-22-18
		Western King 17	8,800	5-14-17	1- 3-18	3-26-18
		Westover 14	8,800	9- 5-17	2-17-18	4-12-18
		War Moon 15	8,800	11- 8-17	3-26-18	4-27-18
Fore River Shipbuilding Co.	Quincy, Mass.	F. J. Luckenbach 265	10,000	1-29-17	9-15-17	11-28-17
		K. I. Luckenbach 264	10,000	1- 4-17	10-27-17	2- 3-18
Great Lakes Engineering Works	Detroit, Mich.	August Ylesing 170	13,000		9- 9-17	10- 9-17
		Florence H. 168	5,500		7- 7-17	10-23-17
		Sidi Mabrouk 172	4,000		7-27-17	10-25-17
		War Leader 174	4,000		9-19-17	11-12-17
		Terregaux 173	4,000		9-15-17	11-15-17
		Tagerfjord 175	4,000		10-16-17	11-23-17
		S. N. A. No. 4 169	5,500		8- 1-17	12- 1-17
Harlan & Hollingsworth Corporation	Wilmington, Del.	W. H. Tilford 442	8,130	4-20-16	8- 4-17	12-28-17
		Saetia 453	4,500	10-14-17	12-19-17	3- 1-18
		Guare 454	4,500	5-17-17	2-17-18	4- 4-18
Maryland Shipbuilding Co.	Baltimore, Md.	W. D. Munson 163	5,500		8- 4-17	9-20-17
		Hatteras 167	7,500	4-24-17	11-20-17	12-21-17
Manitowoc Shipbuilding Co.	Manitowoc, Wis.	Ada 80	3,500		4-21-17	10- 8-17
		Motor One 81	3,500		6-23-17	10-23-17
		War Castle 82	3,500		10-20-17	11-24-17
		War Victor 83	3,500		9-20-17	11-17-17
Moore Shipbuilding Co.	Oakland, Cal.	Coronado 113	9,400	1-25-17	8-25-17	1-16-18
		Sagaland 112	7,100		6-30-17	12- 7-17
		Yosemite 114	9,400	5-28-17	10-31-17	2- 4-18
		Yellowstone 115	9,400	7-12-17	12- 9-17	4-22-18
McDougall-Duluth Co.	Duluth, Minn.	Maski 2	3,300		10-15-17	11-19-17
Newport News Shipbuilding & D. D. Co.	Newport News, Va.	El Capitan 204	6,200	9-29-17	8-18-17	9-18-17
		O. B. Jennings 201	14,900		8-25-17	10-31-17
		Munindies 206	7,430	5-21-17	10- 0-17	12- 6-17
		Munaries 207	7,430	6-27-17	11- 0-17	1- 8-18
		J. C. Donnell 205	14,800	3-23-17	11-24-17	1-22-18
New York Shipbuilding Corporation	Camden, N. J.	Deep Water 176	12,650		8-18-17	10-10-17
		Fairmont 182	8,600	2-13-17	12- 8-17	2-15-18
		Sylvan Arrow 174	12,650	3-22-17	10- 6-17	1- 2-18
		Broad Arrow 175	12,650	4-26-17	12-22-17	3-12-18
		Freeman 183	4,900	7- 7-17	12-27-17	4- 3-18
		Sewalls Point 184	8,600	6-30-17	2-12-18	3-28-18
Pennsylvania Shipbuilding Co.	Gloucester, N. J.	Chestnut Hill 1	7,000	9- 9-16	8-23-17	3-14-18
Seattle Construction & Dry Dock Co.	Seattle, Wash.	Sacramento 92	7,500	4- 2-17	11-21-17	1-28-18
		Southerland 93	7,500	5-28-17	1-19-18	3-16-18
		Bremerton 94	7,500	6- 4-17	3-27-18	4-23-18
Skinner & Eddy Corporation	Seattle, Wash.	Jeanette Skinner 6	8,800	4- 3-16	6-30-17	9- 6-17
		Lt. de Missiessy 8	8,800		8-16-17	9-19-17
		Nickkosan Maru 9	8,800	5-16-16	9-15-17	11- 1-17
		Westhaven 10	8,800	8- 9-17	11- 1-17	12-27-17
		Trontolite 11	9,000	7- 3-17	12-15-17	2- 1-18
		West Arrow 12	8,800	9-18-17	1-19-18	2-26-18
		West Lake 16	8,800	11- 9-17	2- 9-18	3- 9-18
		Western Queen 17	8,800	1- 2-18	3-28-18	4-25-18
		Seattle 83	8,800	8-21-17	11-24-17	1-15-18
		Absaroka 84	8,800	9- 4-17	12-31-17	3- 1-18
		Canoga 85	8,800	12- 1-17	2-26-18	4- 1-18
		Ossineke 86	8,800	12-26-17	3-14-18	4-13-18
Sun Shipbuilding Co.	Chester, Pa.	Chester Sun 1	10,300		10-30-17	12-29-17
		Sabine Sun 2	10,300	2- 8-17	2- 2-18	3-28-18
Staten Island Shipbuilding Co.	Port Richmond, N. Y.	Snug Harbor 689	3,500	10- 6-16	6-29-17	1-22-18
Standard Shipbuilding Co.	Shooters Island, N. Y.	Jupiter 1	7,300	11-11-16	11- 8-17	11- 5-17
Toledo Shipbuilding Co.	Toledo, Ohio	War Shell 140	2,930		9- 1-17	10- 4-17
		War Bayonet 141	2,930		10- 3-17	11- 6-17
		War Rifle 142	2,930		10-16-17	11-16-17
Texas Shipbuilding Co.	Bath, Me.	Maine 1	9,530	6- 5-16	5-24-17	10- 9-17
		Rhode Island 2	9,530	7-25-16	7-15-17	12- 1-17
Union Iron Works	San Francisco, Cal.	War Sword 142	10,000			8-30-17
		Wm. Jebsen 140	10,475		7-21-17	10- 8-17
		F. W. Weller 134	14,900		8- 8-17	12- 7-17
		J. E. O'Niel 143	10,475	4-11-17	8-30-17	1-10-18
		Redondo 154	6,000	8- 2-17	11-11-17	2- 6-18
		A. C. Bedford 135	14,900	4-21-17	10-27-17	2-14-18
		H. L. Pratt 144	10,475	5-29-17	11- 8-17	3- 1-18
		S. M. Spaulding 145	10,475	7-21-17	12-18-17	3-11-18
Willamette Iron Works	Portland, Ore.	Westchester 6	8,800	4- 2-17	12- 5-17	3-17-18
		Westshore 4	8,800	3- 3-17	1-13-18	4-15-18
		War Viceroy 2	8,800		8- 3-17	10-23-17
		Westland 5	8,800	10- 8-16	9-15-17	12-28-17
		Westwind 3	8,800	2- 1-17	11- 4-17	2- 4-18

May 1, 1918. Prepared by the Statistical Department, Executive and Administrative Division.

Generated on 2024-07-26 17:11 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Rare Woods Used in Shipbuilding

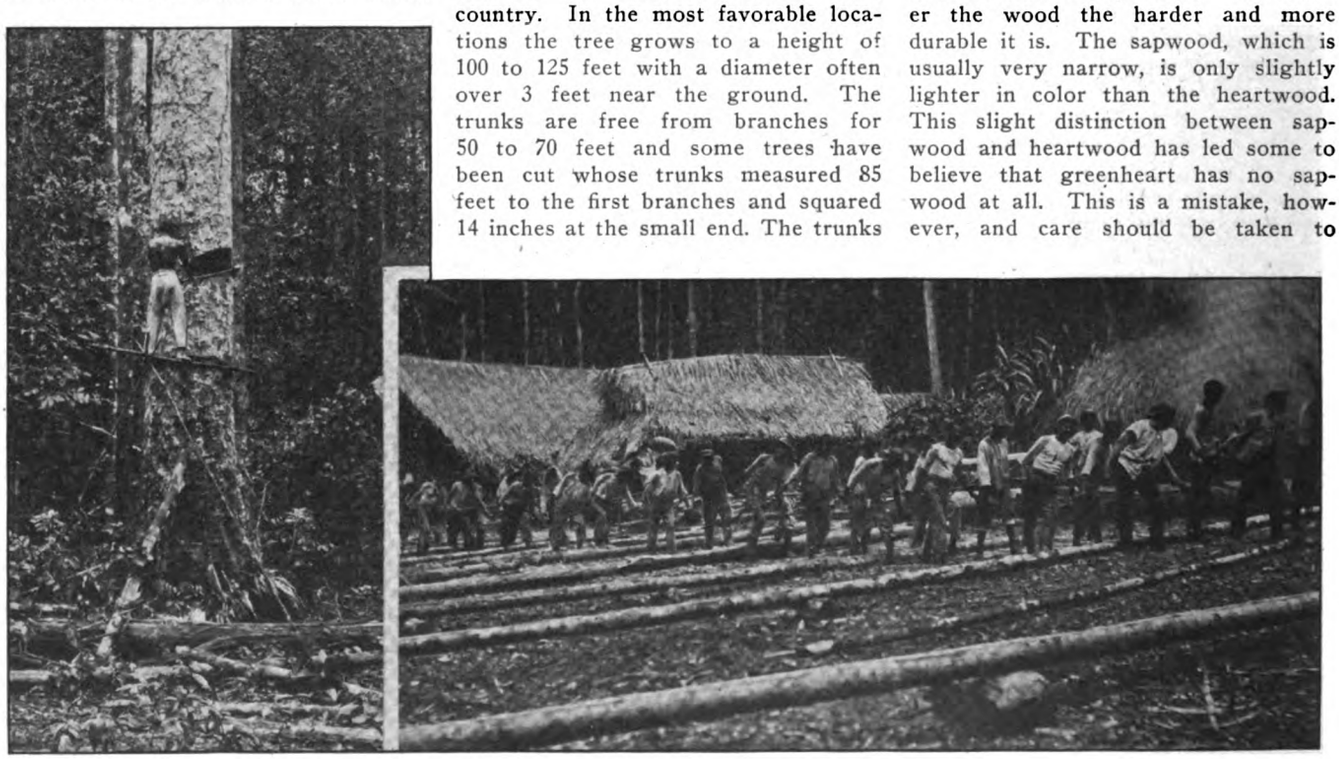
BY C. D. MELL



The upper view shows the squared greenheart logs on the river bank ready for shipping. The lower view shows two sailing vessels loading greenheart logs. Both views were taken at Wismar, British Guiana.

GREENHEART is the trade name given to the wood of a large South American tree botanically known as *Nectandra rodicei*. It is one of the most valuable woods in the world for all classes of marine construction. Greenheart is essentially a British Guiana tree, for it attains its best development along the rivers and on the moist hillsides of that country. In the most favorable locations the tree grows to a height of 100 to 125 feet with a diameter often over 3 feet near the ground. The trunks are free from branches for 50 to 70 feet and some trees have been cut whose trunks measured 85 feet to the first branches and squared 14 inches at the small end. The trunks almost always grow perfectly straight.

As its name indicates, the wood is yellowish green, turning brown with age. The heartwood of real old trees is sometimes nearly black. The darker the wood the harder and more durable it is. The sapwood, which is usually very narrow, is only slightly lighter in color than the heartwood. This slight distinction between sapwood and heartwood has led some to believe that greenheart has no sapwood at all. This is a mistake, however, and care should be taken to



THE VIEW AT THE LEFT SHOWS A NATIVE AXE-MAN FELLING A GREEN-HEART TREE. THE VIEW AT THE RIGHT SHOWS A GANG OF NATIVE LABORERS SNAKING A GREENHEART LOG OUT OF THE FOREST

Generated on 2024-07-26 17:11 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

remove the sapwood, if the logs are to be used in locations subjected to alternating wet and dry conditions. Heartwood only is meant when reference is made to greenheart as being one of the hardest, strongest and most durable woods. It is rarely attacked by marine borers in the tropics. The piles used more than 65 years ago in the construction of piers at Georgetown, British Guiana, are as sound today as they were the day they were put in.

The wood is excessively hard. This is true particularly of that part of the trunk near the base, and the natives engaged in felling trees seldom attempt to cut them close to the ground. The trees are cut usually about 8 or 10 feet from the ground. The axe-man invariably erects a stage around the tree on which he supports himself while felling it. The material thus left in the stumps may be deemed the most valuable, but all the axemen claim that the wood in the stump for 6 or 8 feet up is too hard to cut without breaking the axe. Immediately after felling the trees, the logs are squared by means of a broad axe and hauled by gangs of men to the nearest landing.

Greenheart sinks in water. Its specfic gravity ranges from 1.080 to 1.195. It is very strong, tough, free from knots and other defects and is generally straight-grained. It usually arrives on the market free from defects, but it frequently happens that during seasoning, the ends open up somewhat, though seldom for more than a few feet; the remaining portion of the log rarely shows any signs of checking, nor does it warp or shrink to an appreciable extent. The wood is seasoned under water where it is allowed to remain for six months or a year before it is shipped. After it is placed in position it has never been known to warp or twist.

Its chief use is in ship and dock-building, especially for keelsons, beams, engine bearers, planking, dock and lock gates, piers and piling. It has been known to stand in wharves for a period of 60 years, and logs of greenheart which have remained under water for 100 years have kept in perfectly sound condition. All the gates, piers and jetties of the Liverpool docks and practically all the lock gates of the Bridgewater canal, England, are of greenheart. It furnishes the material, also, for the 50 pairs of lock gates in the Manchester, England, ship canal, and for the miters, quoins, sills and fenders in the lock and dock gates of the Panama canal and docks at Balboa. Nansen's ship the FRAM, and the Antarctic ship DISCOVERY, were built of greenheart. The wood is used also for trestles, bridges, buildings, shipping platforms, staging, millwork, cellar flaps, flooring, wagons and for all purposes involving great wear and tear.

Manning the New Merchant Marine

(*Concluded from Page* 240)

was at first estimated to be 85,000; but events subsequently led to a modification of this figure. The transportation of an immense American army to France, and of its supplies, called for the taking of a great many ships from the merchant marine. The need of arming all ships entering European waters with naval guns led to a proposal that all ships crossing the submarine zone be manned by the navy. After several conferences on this point between officials of the navy department, the war department—then operating the troopships—and the shipping board, a decision was reached by which control of troopships, animal transports and freighters carrying unbroken cargoes of munitions and supplies for military uses were placed in control of the navy, to be manned by naval crews, while Atlantic passenger liners, freighters with general cargoes for our allies, and all merchantmen plying outside the war zone, were left in the control of the shipping board.

This arrangement imposed on the shipping board the work of training many thousand of young men for crews on these vessels.

Work in training the new crews was begun the day the board's authority was granted me to proceed with the plan. To administer the training service a department was created termed the sea training bureau, with a supervisor of training in charge.

For the training squadron two steel screw steamers were at once secured, the CALVIN AUSTIN and the Gov. DINGLEY, twin ships, formerly in the passenger trade on the New England coast, each being of 3800 tons gross register, 299 feet long and 60 feet wide, with reciprocating engines and 2700 indicated horsepower. Each vessel had a rated capacity for 783 passengers. Being speedily converted into training ships, the vessels each had capacity from 500 to 600 apprentices. Because of the large number of applicants, it was possible to select superior material for their complements, which filled rapidly in the first weeks of 1918.

While these two ships were being filled, a third was being fitted out at Newport News, Va. This was the former transport MEADE, ex-CITY OF BERLIN, a graceful old Atlantic liner, with a sound hull and capacity for something more than 1200 apprentices. It was planned to take this ship also to Boston, to be used as a station ship, while the other two made frequent training trips to sea. Later a fourth ship, the Gov. COBB, of the type of the two first named, was put into the training squadron, and plans were put on foot for placing a training ship on the Pacific coast and another at New Orleans.

The training course is of an intensive character. There is an instructor to each 10 apprentices, and he is held responsible for the progress of his group. The apprentices virtually go to school all day, and every day, except Sunday, during their stay on the ship, which is not less than a month in any case, and will probably exceed two months in few.

Daily routine followed by the first classes for sailors on board the ships was as follows:

6:00	A. M.	All hands tidy room.
7:00	A. M.	Breakfast.
8:00	A. M.	General Work.
9:30	A. M.	Discipline, instruction.
10:00	A. M.	Inspection.
10:30	A. M.	Boat drill.
11:45	A. M.	Clean up.
12:00	Noon	Dinner.
1:00	P. M.	Fire drill.
2:00	P. M.	Seamanship.
3:00	P. M.	Boat drill.
4:00	P. M.	General work.
4:45	P. M.	Clean up.
5:00	P. M.	Supper.
6:00	P. M.	Muster and liberty.
6 to 9	P. M.	Recreation, bathing, etc.

Recreation includes singing, for each ship is supplied with a piano. The musical program includes old-time chanties in which the young men are instructed by a veteran deep-water chantie man.

When the apprentices have finished their intensive training they are added to regular crews in the merchant marine, on a given ratio to the experienced men carried. By this method it is expected that no difficulty will be experienced in securing full crews for all ships added to the merchant fleet by the shipping board, as well as for any existing ships that may need men.

In perfecting a plan for enrolling apprentices for its training ships, the recruiting service availed itself of the offer of a patriotic citizen of Boston, Louis K. Liggett, head of large interests in the drug trade, controlling nearly 6900 drug stores, in 6393 cities and towns. These stores were placed at the disposal of the recruiting service for use as enrolling stations. The stores in New England, numbering 526, were first used for this purpose, with signal success, followed by those in New York, New Jersey, and Pennsylvania.

Generated on 2024-07-26 17:11 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

On the Coasts, Lakes and Rivers

What's Doing and Who's Doing It

Ore Fleet is Delayed by Heavy Ice

By Fred B Jacobs

HEAVY ice that formed during the unusually severe winter, still hampers navigation in Lake Superior. Vessels are reporting that large fields of floating ice are encountered. Loading at the ore ports is showing a marked improvement, but it will still take some time to look after the waiting fleet. Ore carriers are heavily bunched. The heaviest jam is at Superior and a captain of a steamer that arrived at that port recently reported over 20 boats ahead of him. Working through the large fields of ice, some of them over 25 miles long, is making boats late at both ends of their routes. The damage and delays, however, have been small compared to that of last spring.

* * *

The new wage scale for the ensuing year has been announced. Under the recently adopted rates, engineers of class A and class B steamers will be paid at the rate of $3036 a season of 12 months. Class C engineers will receive $2783 for 11 months. Class D engineers will get $2530 for ten months. Class E engineers will be paid for actual time at the rate of $236 a month on steamers of over 2100 tons and $213 a month on steamers under 2100 tons. First assistant engineers and first mates will both receive the same rates as follows: Classes A and B, season of 11 months, $2150; class C, 10 months, $1995; class D, 9 months, $1760; class E, actual time worked on vessels of over 2100 tons, $196 per month. On vessels under 2100 tons the rate for these classes is $213 per month.

* * *

With the shipping board's announcement that 34 additional Great Lakes vessels, aggregating 105,000 tons, are to be used in transatlantic service, the importance of the part taken by lake shipping in the war becomes more and more apparent. The vessels which are small enough to be taken through the locks to the sea are already being laden with European consigned supplies, or are busy in the coastwise trade.

* * *

When the government commandeered five Great Lakes steamers recently, it automatically put a large number of summer resorts out of business as means for quick transportation are to be had by water only.

* * *

Cleveland is to have a plant for the construction of concrete vessels, it is announced. The ships are to be built by the Cleveland Builders Supply Co. Construction work will be limited to concrete ships, barges and boats exclusively. The plant will be the first of its kind on the Great Lakes. The size of the vessels to be constructed will permit their passage through the Welland canal. Ships of 2000 tons capacity and barges of 1200 tons capacity will be built. They will be over 200 feet long and 38 feet beam. The plant is expected to complete about four vessels a month.

* * *

Government construction of a canal from Lake Erie to the Ohio river, near Pittsburgh, to handle coal and iron traffic was urged before the house rivers and harbors committee recently by delegations of Pittsburgh and Youngstown business men. In normal times the canal would cost $65,000,000.

* * *

A. A. Schantz, general manager of the Detroit & Cleveland line, closed a deal at Washington recently by which the Goodrich Transportation Co., Chicago, purchased the steamer STATE OF NEW YORK. This vessel was formerly the CITY OF MACKINAC I, one of the oldest passenger vessels operating out of Detroit.

* * *

Toledo, O., got its first cargo of iron ore for the season on May 3 by the steamer AGAWA from Marquette. The cargo consisted of 5431 tons from the Cleveland-Cliffs Iron Co.

* * *

Steamer C. S. NEFF was purchased recently by eastern parties from Adam MacKay, Hamilton, Ont. The vessel is in Buffalo at the plant of the Lake Shipbuilding Co. for reconstruction for salt-water service. It will require several weeks to complete the job.

* * *

Steamer 730 for the Emergency Fleet corporation for salt water service was launched at the Lorain, O., yard of the American Shipbuilding Co. recently.

* * *

The Livingstone channel opposite Amherstburg, Ont., was recently blocked by a number of large boulders brought in by ice. After five vessels had been damaged by striking these menaces to navigation, steamers were ordered to use the Canadian channel exclusively.

* * *

Steamer W. E. COREY, which went aground at Marine City recently, has been released without damage by the tugs A. C. HARDING and MICHIGAN. About 1000 tons of ore had to be lightered before the vessel was refloated.

* *

The steamer W. H. DONNER went aground at Winters point, Mud lake, while upward bound with a cargo of coal. The tug ILLINOIS and the lighter RELIANCE went to the assistance of the stranded vessel.

* * *

The steamer MATTHEWS, according to a dispatch from Sandusky, O., went aground twice in one forenoon while making her way up Sandusky bay to the Pennsylvania railroad docks for a cargo of coal. The first time she released herself by backing off, but the second time she was not so fortunate and required the services of a tug.

* * *

The barge SCOTIA, driven by a heavy gale, dragged her anchor and went aground recently about 100 feet off the south shore of Kelley island. She was waiting at the time for the steamer CHARLES BRADLEY to pick her up. The vessel appeared to be undamaged and none of the crew was lost.

* * *

The steamer J. J. H. BROWN, which struck near Russel island recently, was later released by the tugs HARDING and LOUISIANA and the lighter RESCUE.

* * *

Deputy United States Marshall Cady met the steamer W. F. WHITE at a recent arrival in Buffalo and arrested eight men on a charge of mutiny. The men were later released, after United States Commissioner Keating had given them some sound advice. According to the testimony, the men after working eight hours refused to obey an order given by the mate. The men testified that they were ignorant of the law and had no idea that they were guilty of mutiny in refusing to obey orders. It further developed during the testimony that at the time the men refused to obey orders it was raining and they were afraid of catching cold.

* * *

The steamer LAKE ST. REGIS, launched at the Ashtabula yards of the Great Lakes Engineering Works, recently, has cleared for the coast. This vessel is the first of eight ordered to be constructed at this yard by the Emergency Fleet corporation.

* * *

W. J. Conners, chairman of the board of directors of the Great Lakes Transit Corp., recently announced a general raise of wages to freight handlers in the warehouses and on the docks. The house men are to get a raise of from

Generated on 2024-07-26 17:11 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

50 to 60 cents an hour, while the dock men's rate will be increased from 40 to 50 cents.

* * *

The Pennsylvania Steamship Co. recently sold the steamer W. H. WOLF to Col. C. W. Harrah, Detroit. The sale was negotiated by Capt. E. H. Horn. Capt. J. T. Hanson, who commanded the JOHN PLANKINGTON last season, will sail the WOLF and Captain Horn will manage her. The WOLF was built in Milwaukee in 1887 and is 285 feet long with a beam of 42.3 feet.

* * *

The unloading dock at Gary, Ind., made a record recently by unloading the steamer WILLIAM B. DICKSON of the Pittsburgh Steamship Co.'s fleet with a cargo of 11,415 tons of ore in four hours and 10 minutes.

* * *

A recent heavy gale wrecked the new unloading rig erected by the Inland Steel Co., South Chicago, the damage approximating $250,000. The Iroquois Iron Co., South Chicago, also lost an unloading rig during the same storm. The rig was valued at $200,000. One man was seriously injured when the rig collapsed.

* * *

Repairs on the steamer A. S. UPSON have been completed at the Lorain, O., yard. In the absence of Capt James Cannally, who was on the sick list, Capt. Ivan Kennedy brought the vessel to Cleveland.

* * *

Capt. Charles Hahn, formerly on vessels of the North American Steamship Co., has been appointed master of the steamer JAMES E. DAVIDSON of the Tomlinson fleet, replacing Capt. Warren Jones. Capt. Jones is now engaged in shore work for the company.

* * *

The steamer W. C. FRANZ of the Algoma Central Steamship lines was recently damaged by fire at the dock of the Cleveland Furnace Co. Eight plates were badly buckled and repairs will cost approximately $6000.

Along the Atlantic and Gulf Coasts

SO great is demand of war work at Boston that practically every derrick lighter and tug is employed continuously either in connection with the big embarkation plant or at the navy yard and repair plants. Ordinary business is having to wait till government requirements release part of the equipment.

* * *

The 3-mast schooner GEORGE CHURCHMAN, built at Gainsboro, Md., in 1874, has been sold by the Pan American Co. to the Boston Shipbrokerage Co. for $7600 and will be commanded by Capt. E. L. Joyce.

* * *

Steamers BELFAST and CAMDEN have been placed in the Boston-New York service of the Eastern Steamship lines, Inc., and make the run in 14 hours via the Cape Cod canal. The ships were built for the Boston-Bangor line and have accommodations for 500 passengers.

* * *

The Canadian government has assigned the British steamship ARANMORE to the Boston-Yarmouth, N. S., route. The ship is of about 500 net tons and will carry freight exclusively.

* * *

Dr. H. B. Riemer of the public health service, who has been boarding ships at Boston for 14 years in connection with the immigration station, has resigned to attend to private practice.

* * *

At Cobb's yard, Rockland, Me., 4-masted schooner ELLA PIERCE CROWELL was recently launched, ready for sea, and will be managed by Crowell & Thurlow, Boston. The vessel is 221 feet long and registers 1344 net tons and 1500 gross tons. Capt. R. B. Drisko, formerly in schooner CAMILLA MAY PAGE, is in command.

* * *

The Boston Tow Boat Co. has purchased barge DAVID K. of 850 tons and barge JENNIE SCULLY of 650 tons for harbor and coast transportation of coal.

* * *

The Atlantic Coast Co., owned by Boston capital, has shipyards at Thomaston, Me., and Boothbay Harbor, Me., and it is expected that 13 schooners aggregating 27,000 tons will be launched this year. W. D. Noyes, Boston, is president of the company. The first vessel to be launched from the Thomaston yard is the 4-mast schooner AUGUSTA G. HILTON.

* * *

The fishing schooner JAMES R. CLARK, owned by the Commonwealth Fisheries Co., Boston, was sunk following a gasoline explosion near the Fish pier recently. Salvage operations were interfered with owing to the shortage of necessary equipment.

* * *

Wreckage of 5-mast schooner DAVIS PALMER, sunk in Boston bay, December, 1909, is beginning to come ashore. When the collier foundered Capt. McKown and 13 others lost their lives.

* * *

Sixteen steamers of the Atlantic, Gulf & West Indies lines, comprising the Clyde, Mallory, Ward and Porto Rico lines, have been taken over by the government. The Boston service of the Clyde lines to Charleston and Jacksonville will have two sailings weekly.

* * *

The Story & Wardwell shipyard, Boston, has been sold to Capt. O. A. Gilbert representing the Boston Shipbrokerage Co. The plant is to be used for the present in repair work.

* * *

Because the Nantasket Beach Steamboat Co., Boston, supplied a number of schools with coal during the winter it was found impossible to begin the running season April 19 as customary. Fuel was secured, however, to enable the line to resume operations May 1.

* * *

The 3-mast schooner HERALD, owned by H. S. Lord and others, Boston, has been abandoned near Pensacola, Fla. Capt. J. J. Peterson and crew were landed at Galveston, Tex.

* * *

Owing to complaints from the men working in Staten Island, New York, shipyards, over the failure of street cars to maintain an adequate service during morning and night rush hours, the Richmond county grand jury has taken up the matter. There are more than 15,000 shipbuilders now working in Staten Island yards.

* * *

The Pusey & Jones shipyard, Wilmington, Del., is striving for a record in completing a vessel in the shortest possible time. On the Pacific coast a vessel was launched in 61 days from the time the keel was laid. This was accomplished by working the plant continuously. The Pennsylvania shipyard wishes to surpass that feat. The keel of a tanker was laid on April 1 and every effort is being made to have the vessel ready for launching within 100 days, working regular time with only one shift of men.

* * *

The recently completed steamship GUARO, built at Wilmington, Del., for the Standard Oil Co., made a successful trial trip. The vessel is a bulk oil carrier adapted for both coastwise and foreign trade.

* * *

Two Dutch vessels PROCYON and THUBAN, each of 3566 gross tons, are to be used for the present in the coal service between Chesapeake bay ports and New England. These vessels made several voyages from Portland, Me., to Holland with grain for Belgium.

* * *

Extensive construction has been decided upon for Charleston, S. C., and the work will require an investment of $20,000,000 by the government. The construction is to provide a pier and warehouse for the quartermaster's department. Plans call for building permanent warehouses of concrete and a pier of the same material extending for 5000 feet along the Cooper river. There will be no slips as vessels will moor broadside to the quay.

* * *

A working basis of eight hours a day with four hours on Saturday has been fixed at the shipyards at Savannah, Ga. The scale of wages ranges from 30 cents an hour for laborers to $1.30 an hour for shipyard workers. Men on night shifts receive 5 per cent more pay than those working day time.

* * *

Contract for 12 ocean tugs and 12 barges for the French government is

Generated on 2024-07-26 17:12 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

understood to have been definitely placed by the French government with the Fernandina Shipbuilding & Dry Dock Co., Fernandina, Fla., by the French high commission with the United States shipping board's approval.

* * *

W. W. Van Meter, J. P. O'Leary, and Ole K. Olsen have been appointed by John Reese, president of the General Contractors' association, New Orleans, as a committee to investigate the concrete shipbuilding facilities and opportunities in the Crescent City. Report of the committee will decide whether the contractors, as an organization, undertake the establishment of a yard.

* * *

Reports that wooden shipbuilding would be curtailed for steel ship production after the present program is completed, caused consternation all along the Gulf coast, where a large number of wooden ships, from 1600 to 3000 tons, are under construction. These shipbuilders and southern lumbermen have been informed that there is no intention of cutting down the production of wooden ships.

* * *

The Mississippi Shipbuilding Corp. has launched a 1600 ton auxiliary from its yards at Biloxi, Miss., and has begun work on another vessel of the same size. The boat is equipped with two 300-horsepower semidiesel engines and is valued at $250,000.

* * *

New Orleans has been designated as headquarters of the sea service bureau of the United States shipping board and Capt. Ernest E. B. Drake has been appointed agent. All workings of this branch will be under the general control of Ernest Lee Jahncke, chief of the Gulf section of the shipping board.

* * *

Announcement is made by the president of the board of port commissioners that the river locks of the new industrial canal which is to be dug across the city of New Orleans, between the Mississippi river and Lake Pontchartrain, will have a minimum depth of 25 feet. First plans provided for a minimum depth of 18 feet, and now a number of engineers are agitating a depth of 32 feet for the locks, at least, if not for the canal itself.

* * *

The Coast Ship Co. and the Biloxi, Miss., shipyard are working on two wooden schooners of 2000 tons each, which will be launched in July.

* * *

The Foundation Co., New York, and the Decatur Bridge Co., Decatur, Ill., have had engineers in New Orleans considering sites and facilities for the establishment of shipbuilding plants. The main drawback seems to the lack of a channel to deep water and the board of port commissioners, as well as city officials, have been busy establishing guarantees that such a channel will be provided, either by means of the industrial canal, or through Lake Pontchartrain, by the time the first ship constructed by either of these companies, would be ready for launching.

Up and Down the Pacific Coast

LUMBER rates in the north Pacific are much more stable since the chartering committee of the government fixed a maximum freight of $42.50 to Sydney, New South Wales, and $45 to other Australian ports. While a maximum for South America has not been announced, it is understood that $45, the going rate, is about the highest that will be approved. In addition, all lumber vessels are being diverted to ports for return cargo, whereas under normal conditions lumber vessels return in ballast. The government is making full use of sailing tonnage to bring back war essentials such as wheat, wool, copra and nitrates.

* * *

Two Seattle workmen, George S. Kollock, an electrician, and Robert P. Martin, a shipbuilder, have invented and patented an electrically-driven shipriveting and caulking machine. The device, the inventors point out, can be attached to the electric wiring of an office. The machine is designed to deliver twelve hundred 300-pound blows per minute.

* * *

Through efforts of local officials and the United States shipping board, railroad trains for transporting workmen to Seattle shipyards have been established, thereby relieving severe congestion. Two trains are operated daily and between 1500 and 2000 workmen are thus carried to their work.

* * *

The Japanese steamers JAVA MARU, INDO MARU, MALAY MARU, MANDASAN MARU and MEIGEN MARU, upon their arrival from the Orient within the next six weeks, are to be turned over to the United States government, in accordance with the recent agreement between the Japanse government and the United States.

* * *

Word has just been received of the sinking by collision off the French coast of the United States shipping board 8800-ton steel steamship WESTERLY. This vessel was the first turned out by the Seattle plant of the Ames Shipbuilding & Dry Dock Co. She was built for the Cunard line and was launched Nov. 24 as the WAR BRIGADE.

* * *

Capt. James S. Gibson, retired mariner for many years and one of Seattle's best known business men, has decided to offer his services to the Emergency Fleet corporation and he will consequently be assigned to the command of the new steamer WEST ALSEK, to be in commission about June 1. Captain Gibson's action is a patriotic move and is in line with the decisions of many other retired masters to assist the government at this time. Capt. W. Frank Andrews, formerly a well known master of sailing ships, has been given command of the 7500-ton steel steamer TACOMA, now completing at Tacoma. Other well known mariners who have been given shipping board positions include the following:

Capt. A. F. Ogilvie, to steamer WESTOVER.

Capt. John A. O'Brien to steamer OSSINEKE.

Capt. J. M. Walters to steamer WESTDURFEE.

Capt. G. Gallis to steamer WESTERN WAVE.

Capt. C. J. O'Brien to steamer WESTBORO.

Capt. O. J. Humphrey to steamer BREMERTON.

Capt. J. A. MacDonald to steamer WALTER A. LUCKENBACH.

Capt. Frank Worth to steamer NINJI NOVGOROD.

Capt. Samuel B. Snow to steamer TOULA.

Capt. A. Armond to steamer KISHINEV.

* * *

Concrete shipbuilding is being undertaken by several Puget sound companies. The Interocean Barge & Transport Co., Seattle, has established a yard for building concrete barges, and has adopted the plan of pouring the concrete between walls of wire mesh rather than of wood. The West Coast Shipbuilding Co., Everett, Wash., has informed Chairman Hurley it is prepared to accept contracts for constructing concrete ships and a third concrete plant is in contemplation at Steilacoom, Wash., which is situated a short distance from Tacoma.

* * *

The 4000-ton wooden, full-powered motorship ALABAMA, launched at Seattle, April 24, has been sold to French interests and will shortly be delivered to the new owners. The deal was consummated through the Thorndyke-Trenholme Co., Seattle, representing French capitalists who have recently purchased considerable tonnage on the north Pacific.

* * *

The Russian steamship NINJI NOVGOROD is undergoing extensive repairs at the plant of the Seattle Construction & Dry Dock Co., and upon returning to service she will load for the United States shipping board. The steamers KISHINEV and TOULA, also of the Russian volunteer fleet, have been taken over by the United States government and have already departed for unnamed ports. These vessels came to Seattle several months ago to load steel and railroad equipment for Vladivostok. However, after they were more than half loaded, operations were stopped owing to conditions in Russia. After weeks of delay, the vessels were chartered by the United States government. The Russian steamer STORVIKEN has also departed under charter to the Emergency Fleet corporation and it is reported that the Norwegian steamers THORDIS and LUISE NIELSEN, now here, will also be taken over for North Atlantic service.

Generated on 2024-07-26 17:12 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Red Hot Tips From the Trade

Pertinent Suggestions and Personal Gossip

GEORGE PURVIS, formerly inspector of boilers at Port Huron, Mich., has completed the organization of the Geyser Boiler Appliance Co., Detroit, of which he is president and general manager. The company will handle the boiler cleaning appliance which is being manufactured by the Detroit River Iron Works, Detroit. This cleaning device has been installed during the last few weeks on the following Great Lakes vessels: E. J. EARLING, CALCITE, HARVEY H. BROWN, JOHN P. REISS, M. A. BRADLEY, CHARLES HEIDEN and JOHN MCKERCHEY.

To Build Marine Equipment

With a view to enlarging its facilities, C. C. Galbraith & Son, Inc., New York, has established a plant at Keyport, N. J., for the manufacture of marine equipment and shipyard supplies. The newly acquired property includes a building three stories high, 70 x 90 feet, with ground space, 100 x 175 feet. A large portion of the new plant's capacity will be devoted to the production of treenails, in which the Galbraith company is a large dealer, controlling the output of four mills in West Virginia, one in Rockland county, New York, and one in Peekskill, N. Y. In addition to the production of treenails, and various other shipyard supplies, the company will build and assemble small craft such as working boats, motor yawls and life boats required in the fitting out of steamships.

Revival of Oakum Trade

In the halcyon days of the old American merchant marine, before the civil war, numerous oakum factories were located in various convenient seaports. Most of the old firms that were established in the early days have gone out of business. In fact, when the European war began, there were but three marine oakum manufacturing concerns in the entire United States. With the reestablishment of wooden shipbuilding, however, the production of oakum became of renewed importance.

Arthur C. Stratford, president of the George Stratford Oakum Co., Jersey City, N. J., pointed out recently that after the building of wooden vessels declined, the few remaining marine oakum manufacturers engaged also in the business of making plumber's oakum. This kept the business alive and when the first wooden ships to be built for the Emergency Fleet corporation were ready for caulking, no difficulty was experienced in obtaining enough oakum. About 300 bales of oakum are required to caulk a modern wooden ship.

The Stratford company has issued a 67-page book entitled "Useful Facts About Oakum and Kindred Products." The book is illustrated and gives many interesting facts about the preparation and grade classifications of this material. The kindred products include plaster and upholstery fibres, spun caulking cotton, sheathing felt and friction, binders' and trunk boards. It is said that danger from spontaneous combustion is eliminated in this material and results are given of tests made on the company's oakum by the bureau for the safe transportation of explosives and other dangerous articles.

Decking Material

The Marine Decking & Supply Co., Philadelphia, is distributing a booklet describing its decking material. This decking was developed in Italy in 1900 and was first used for marine work seven years later. Since its introduction into America in 1913, it has been used upon a large number of well known ships. The decking is a plastic material carefully designed to withstand wear. It is laid on the steel decks with a trowel. The booklet contains a complete description of the material and the method of application.

Reorganizes Tool Company

The interests owning the Independent Pneumatic Tool Co., Chicago, and the Aurora Automatic Machinery Co., Aurora, Ill., have reorganized these firms under the name of the Independent Pneumatic Tool Co. Both companies have been owned by the same interests, the Independent Pneumatic Tool Co. representing the selling division for pneumatic and electric tools while the Aurora Automatic Machinery Co. was the manufacturing department, also making motorcycles and gasoline engines.

The new company is incorporated in Delaware for $3,000,000. Ten directors will serve on the board as follows: John P. Hopkins, chairman; John D. Hurley, James J. McCarthy, William A. Libkeman, Leonard S. Florsheim, Edward G. Gustafson, Robert T. Scott, Ralph S. Cooper, August Gatxert and Fletcher W. Buchanan.

The general offices of the company are in Chicago and branch offices are located in New York City, Pittsburgh, Detroit, Birmingham, Ala., San Francisco, Toronto, Ont., and Montreal, Que.

Condenser Tables

The Wheeler Condenser & Engineering Co., Carteret, N. J., has issued the fourth edition of its 32-page hand book entitled "Steam Tables for Condenser Work". The booklet contains three tables, as follows: Independent variable, vacuum; properties of saturated steam from 29.8 inches vacuum to atmospheric pressure; independent variable, temperature; properties of saturated steam from 32 degrees Fahr. to 212 degrees Fahr.; independent variables, gage pressure and absolute pressure; properties of saturated steam from 0 pound gage pressure to 200 pounds gage pressure.

The pressures below atmosphere are expressed in inches of mercury referred to a 30-inch tube. The booklet includes a discussion of the mercury column, the errors in such measurements and constants for their correction.

Refrigerating Machines

"Ice and Frost" is the title of an attractive booklet published occasionally by the Frick Co., Waynesboro, Pa. The current issue contains 32 pages and gives a comprehensive explanation of mechanical refrigeration, a description of some of the refrigerating machines manufactured by the company and tables of specifications of belt and steam-driven compressors.

Generated on 2024-07-26 17:12 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Equipment Used Afloat and Ashore

Dynamic Balancing Apparatus—Recuperative Gas Oven Furnace

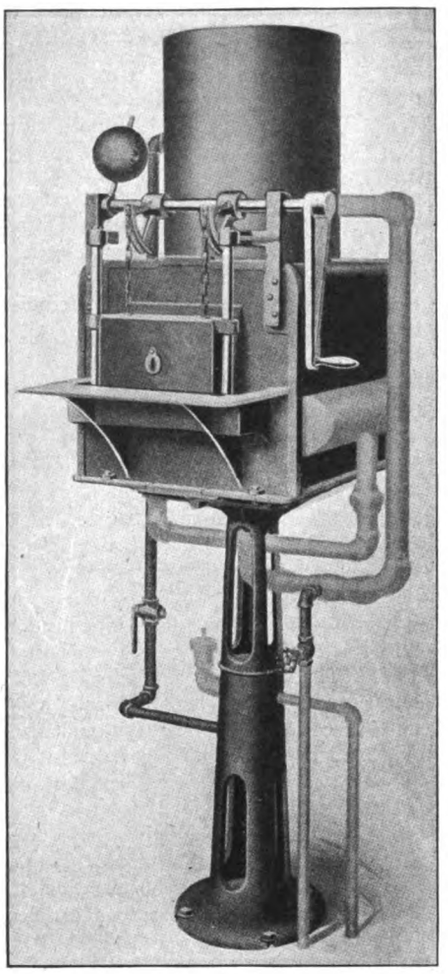
IN FINISHING a crankshaft or a turbine rotor, considerable difficulty is experienced in having it come from the machinist's hands in perfect balance. Static balance, which permits a piece to remain in any position when placed on level ways, involves no great difficulty. However, a body may be in perfect static balance and develop a centrifugal couple leading to severe vibration at high rotative speeds.

To overcome this objection as economically as possible, the Carlson-Wenstrom Co., Philadelphia, has developed the balancing apparatus shown in the accompanying illustration. The object to be balanced is supported and rotated on a bed which is fixed at one end but free to vibrate at the other end in one place only, under the influence of the unbalanced moment. Below, and parallel to the body under test is another shaft suspended from the bed and turning in the same direction at the same speed.

On the lower shaft are weights which may be shifted while running to produce a centrifugal couple of variable but accurately measured amount. By varying the plane of these weights, and the distance between them, a position is found in which the unbalance due to the known weights exactly neutralizes the unbalance in the object tested. The piece under test is now corrected by drilling holes in the proper places or removing stock with a grinding wheel.

The estate of W. I. Babcock and Babcock & Penton, consulting naval architects and engineers, New York City and Cleveland, announce that the business was discontinued May 1. Communications may be addressed to H. Penton, Penton building, Cleveland.

The Commercial Camera Co., Rochester, N. Y., has recently issued a 16-page booklet describing its line of photographic copying machines. It is pointed out that the apparatus furnishes a simple and practical means for rapid facsimile photographic reproductions of letters, signatures, legal papers, maps, drawings, blueprints, financial statements, books, archives or any written or printed documents. The apparatus is practically a large camera equipped with a self-contained arrangement for developing and fixing the prints, photographic copies being made direct without preparing a transparent negative. The booklet is illustrated and describes the apparatus in full.



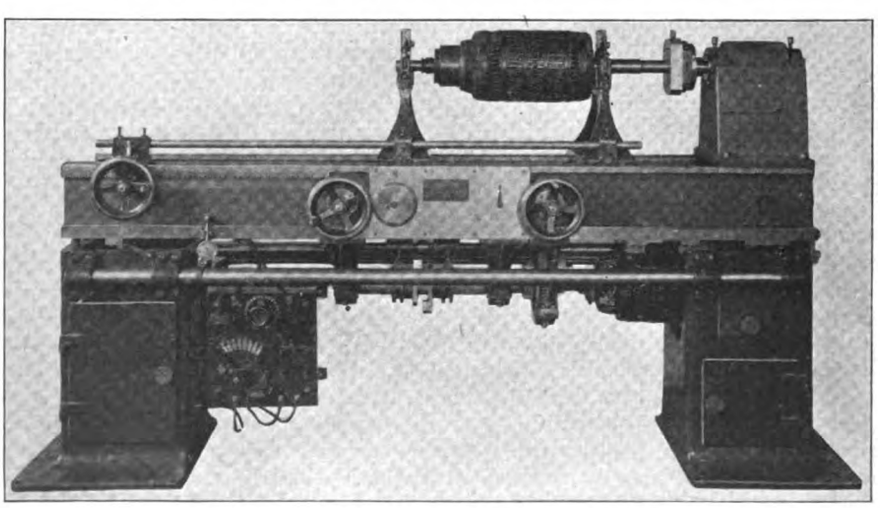
RECUPERATIVE GAS OVEN FURNACE OF NEW TYPE

Recuperative Gas Oven Furnace

With the cost of all kinds of fuel used for industrial purposes advancing steadily, heating furnaces are being sought that will give the maximum amount of heat while consuming the minimum amount of fuel. The recuperative furnace shown in the accompanying illustration has recently been placed on the market by Tate-Jones & Co., Pittsburgh. This furnace embodies novel features and it is claimed that it is economical in operation.

The base or pedestal on which the furnace rests is cast iron while the outer case of the furnace is cast iron and boiler plate. The hearth walls are lined with highly refractory material. The burners are designed on the so-called blast system in which the gas and air are mixed at some little distance from the point of combustion. The burners, which are connected directly to a manifold, deliver the ignited fuel under the hearth. Among other features may be mentioned the fact that the thermocouple lies in a recess in the hearth, also the size of the vent that carries away the burned gases has been given consideration.

With the object of salvaging as far as possible the burned gas that otherwise would escape without performing its full quota of work, a recuperator has been added to this furnace. The advantages of recuperation are many, for aside from saving fuel it is said that a better furnace temperature is maintained, inasmuch as practically all the fuel is completely oxidized before leaving the combustion chamber. The recuperator consists of a coil of wrought iron pipe treated especially to eliminate oxidation.



DYNAMIC BALANCING APPARATUS

Generated on 2024-07-26 17:12 GMT / https://hdl.handle.net/2027/uiug.30112043868493
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN